

## Private owners buy Chilean state fishing companies

THE denationalisation of Chilean fishing companies is nearing completion with the selling of Pesquera Iquique SA. There were four offers for the controlling shares in this company, which is owned by the Corporation of Production Development (CORFO), a state-run agency.

Pesquera Iquique operates boats and processing plants turning out meal and canned fish in Iquique and Talcahuano.

According to Luis Danus, vice-president of CORFO, its sale will mark almost the final step in the legal transfer of state-owned fishing companies to private ownership.

The only controlling interest remaining is in the company Pesquera Chile-Arauco in San Antonio. But this company will also be put up for bids.

A big increase in the number of fishing

companies established in Chile began in the early 1960s with the passage of special legislation to encourage fishery development. The number grew to 24, but many companies began having severe economic problems, due mainly to a fall in the anchovy harvest along the Chilean north coast.

After 1966, CORFO headed a movement to consolidate the industry. It

urged that fishing activities should be rationalised. Through mergers it reduced the companies to eight. Later, the state took over control of these companies.

Under the present government, CORFO has been reversing the process. At one stage it was thought that one company would remain state-owned, but it has since been decided that all fishing enterprises will be privately owned.

## Agreement over new NZ limits

SPEAKING AT a press conference in London last month, New Zealand's Deputy Prime Minister, Mr. Brian Talboys, said there had been no agreement yet with the Soviet Union over access to New Zealand waters.

But it was likely that the Soviet Union, as the fifth largest export outlet for NZ agricultural products, would be allowed into the new 200-mile zone which came into force on April 1.

### Japanese

South Korea was being allowed limited access. But there was no likelihood of an agreement with Japan until the Japanese agreed to global quotas for agricultural products from New Zealand.

Mr. Talboys emphasised that all these countries were relatively small outlets compared with the countries of the European Economic Community.

So far, Britain had shown very little interest in fishing New Zealand waters. But an agreement had been signed in West Germany which provided for an exchange of NZ agricultural expertise for German technical and scientific help in fisheries.

This could lead to a joint venture involving a factory ship and company to company co-operation.

## MONEY TO FIND THE FEMALES

RUSSIAN factory ships have been looking for Norwegian capelin to help them select female capelin for sale to Japan.

Reporting this, the Northern Norway paper *Finnmark Dagblad* said that 12 men were approached but only one accepted, at a salary of about £14,500 for a short season.

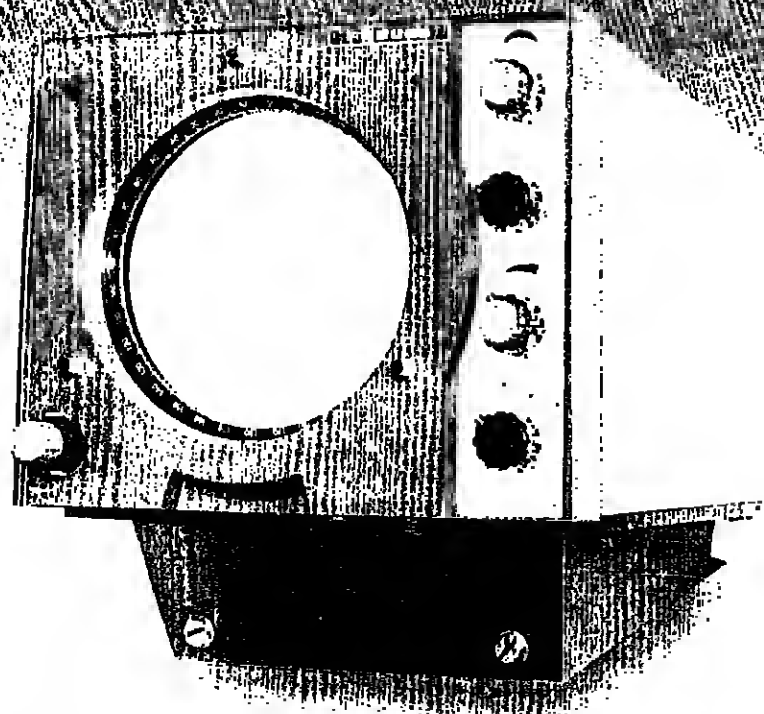
### Returned

Later he returned from Murmansk to Berlevag in East Finnmark to recruit more people.

Liv Birkeland, sales director of the frozen fish sales organisation Frionor, said that Norway dominated the export market for this product.

Fresh female capelin with roe is a delicacy in Japan. The Norwegian capelin is said to get the best prices, after the local product.

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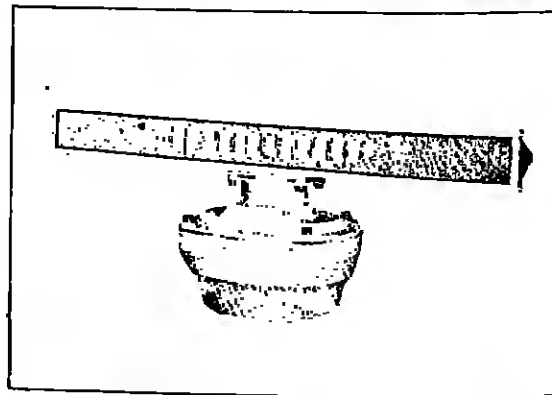
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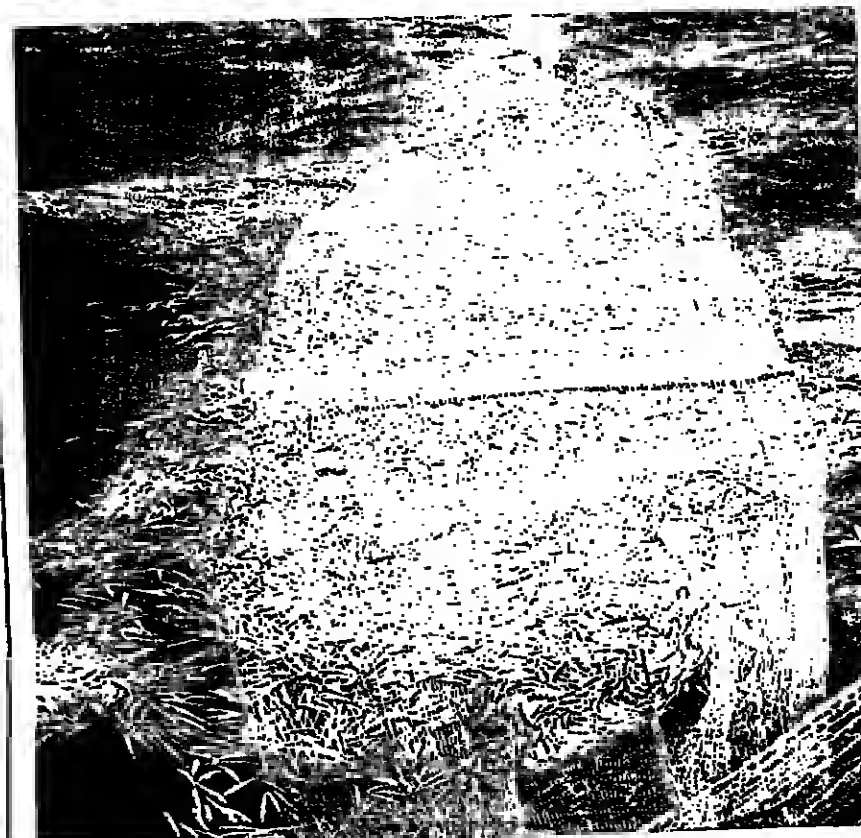
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# BLUE WHITING ON TRIAL!



A cod and bulging with blue whiting comes aboard a British trawler. Japan may soon provide a huge market for this abundant north-east Atlantic resource.

## Japanese tests could start British boom

BLUE WHITING could be the next boom fish for the British industry if it passes tests being carried out in Scotland. The White Fish Authority and the big Japanese company Nippon Suisan are working together in a factory in Stornoway on the Isle of Lewis to see if an acceptable "surimi" can be made from this small cod-like fish.

Surimi is the raw material of Japanese fish sausages and its widely used kamaboko.

Japan has lost hundreds of thousands of tons of fish over the past two years through

the extension of 200-mile limits into distant water grounds.

The heaviest loss is of Alaska pollack. This was the fish mainly used for surimi, and companies such as Nippon Suisan have been searching the seas of the world for replacements.

They could find much of what they need in blue whiting or poutassou.

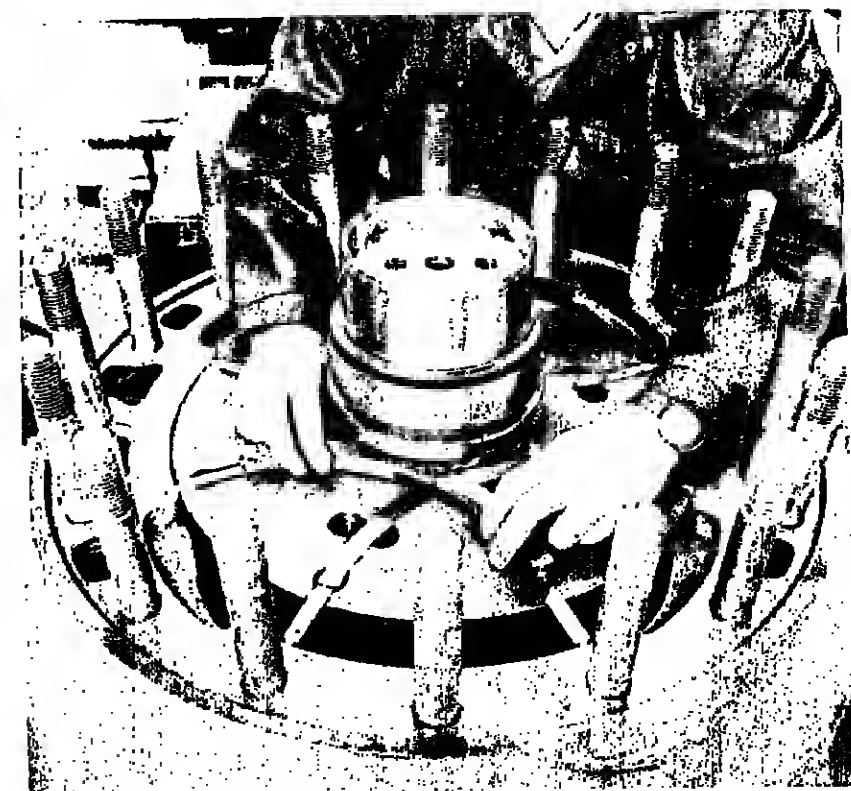
The fish is found in northern and southern waters. To the west of the British Isles, huge shoals concentrate from about April to June before migrating to the north-east. They could yield catches of a million tons and more a year.

The 1978 blue whiting hunt is now on. Norwegian ships, many of them specially built, could boost their 1977 haul of 38,000 tons to 100,000 tons or more. Danish, Faroese, Icelandic and other European ships are also reported to be fishing.

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Full story on centre pages



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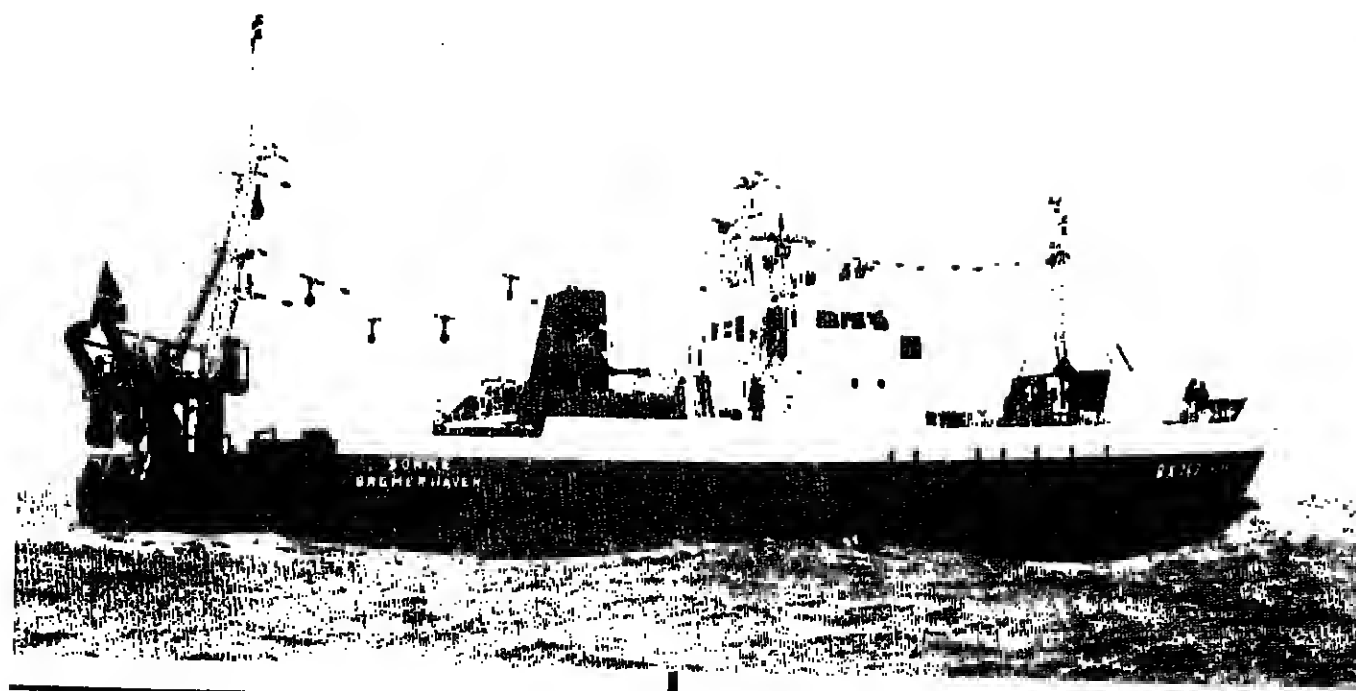


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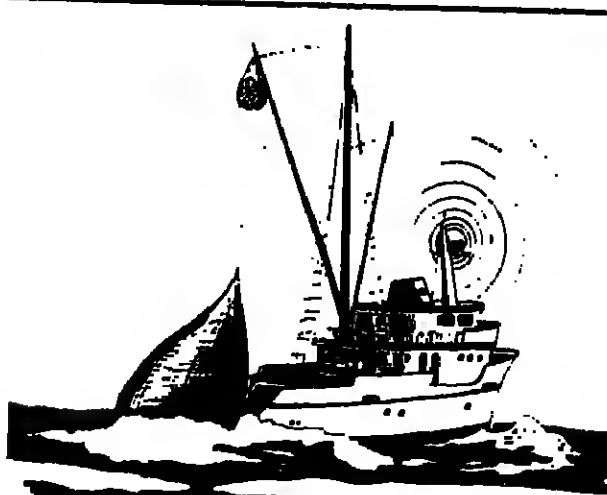
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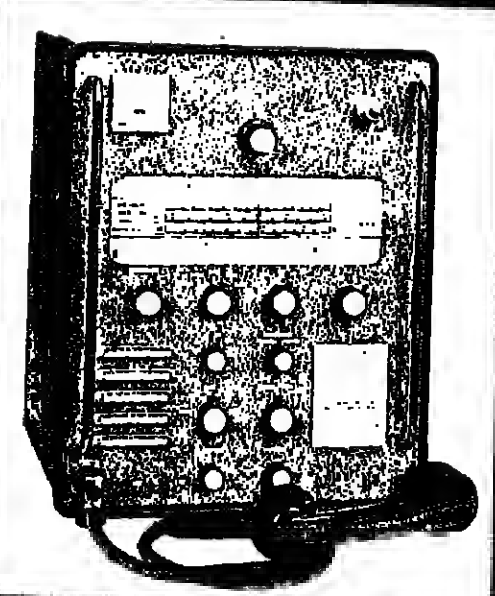


## New German wet fisher

ONE of a series of new wet fish trawlers for the West German fleet, the 542 metre long "Sonne" has been completed by the Bremerhaven yard of Rickmers Werft for Nordstern AG. This 950 gross ton trawler is powered by a MaK main diesel engine of 2,400 hp which gives her a speed of 14 knots. Like the larger factory trawlers built in the early 1970s, the "Sonne" is designed for mid-water and bottom trawling. She is comprehensively equipped with the most up-to-date gear handling and fish finding equipment. A full description of this outstanding new ship will be published in *FNI* next month.



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## Loans to double island cold stores

THE Philippines government is planning to more than double the number of ice plants and cold stores it runs at ports around the country's long coastline.

At present it operates 16 plants. Another 24 are to be provided to help boost fish catches, in raise quality and cut waste, and to help increase the earnings of small-scale fishermen.

Cold stores and ice plants will be financed through two loan packages. They are intended to assist small fishermen market and distribute their catches.

They will also be helped by a programme of small boat mechanisation which forms part of a five-year plan designed to upgrade the industry.

One of the reasons why fishermen in the fleet of outrigger boats do not venture further to sea is that this delays their return in time for the early buyers offering the best prices.

# WEATHER HITS THE CAPELIN CATCHERS

NORWAY'S winter capelin season ended on Friday, April 14, with a catch well below those of the previous two seasons.

Over a three-month period, starting on January 12, Norwegian purse seiners and mid-water trawlers took a total of 800,595 tons. This was below the winter capelin quota set for the first time by the Fisheries Directorate. And it was far below the big haul of 1,463,518 tons of January-April

1977. In the same period of 1976, the catch totalled 1,278,428 tons.

Although the capelin shoals were apparently not as abundant as they have been in recent years, this was only part of the reason for the big drop in catch.

Extremely cold weather in the first part of the season caused almost impossible fishing conditions, particularly for the smaller boats. There were occasions when the purse seine nets froze as the power blocks were hauling them out of the water.

Netts also froze solid on the decks of the vessels, which then had to return to port to try and thaw them out.

Bad weather also kept the winter cod catch below the high expectations of early 1978. But by mid-April, the catch, at 53,728 tons, was still the best since 1973. For the same period of 1977 it was just under 43,000 tons.

The three main processing uses of the 1978 winter cod catch were 22,888 tons for salting, 14,661 tons for drying and 10,736 tons for fillet freezing.

## New kipper

FINDUS in Britain has announced a new smoked mackerel product which it sees as an economical alternative to the traditional British herring kipper.

Selling at 42p for 6oz, the cook-in-bag fillets have considerable price advantage over herring kippers. They have a "meatier texture and better flavour".

## BANKRUPT FEAR AFTER NZ FINES

THE captain, chief officer and bosun of the Japanese trawler *Taiako Maru No.2* were all found guilty in a Wellington magistrate's court last month for using a net with a liner in the cod-end while in New Zealand waters (see Page 33).

In addition to the fines, which amounted to NZ\$34,000, the New Zealand government said it was setting a redemption fee which the owners would have to pay to recover the ship and her gear.

Pleading for leniency, the managing director of the owners said the fines and the delay would cost them about \$360,000 and that a redemption fee could bankrupt them.

AN international symposium on coast and fisheries protection and surveillance systems is to be held in Sydney, Australia, from June 21 to 24. It is being organised by the Hawker de Havilland group of companies in collaboration with the Australian government departments of Trade and Resources and of Primary Industry.

Australia is the latest of the countries with long coastlines to prepare for a 200-mile exclusive economic zone. Legislation providing for this was introduced to Parliament last month and should be approved by mid-year (see Page 26).

The symposium should, therefore, serve the double purpose of bringing together the main 200-mile limit countries to exchange ideas and experiences, and help the Australians prepare their own protection system.

Its aim is to provide state-of-the-art information about available systems and equipment, as well as the benefit of the experience of countries that have already set up their controls and organised their surveillance.

The seminar organisers have invited speakers from India, Indonesia, Denmark and Canada.

By the end of the 1970s, say the organisers, most countries with

coastal borders will have declared their EEZs. But the declaration in itself will do little to ensure that the maximum benefits are obtained from the wider limits.

Unless these limits can be adequately policed, in a physical sense, there is little or no incentive for third countries to make any payments for rights of access.

"The keynote of the symposium," they continue, "will be maximum effectiveness for the least cost. Clearly, a surveillance system can range from something that is fairly rudimentary and limited to one that is extremely

They add that they will be demonstrating the type of systems that can be implemented for a specific expenditure. They will also try to demonstrate "the financial benefits that could result from revenue earned by licensing access rights to the EEZ".

● The "important opportunities worldwide arising out of the 200-mile limits" form the theme of a meeting to be held in a committee room of the House of Lords in London on May 15. Organised by the Greenwich Forum, the meeting will include a review of fish hunting and fish farming opportunities.

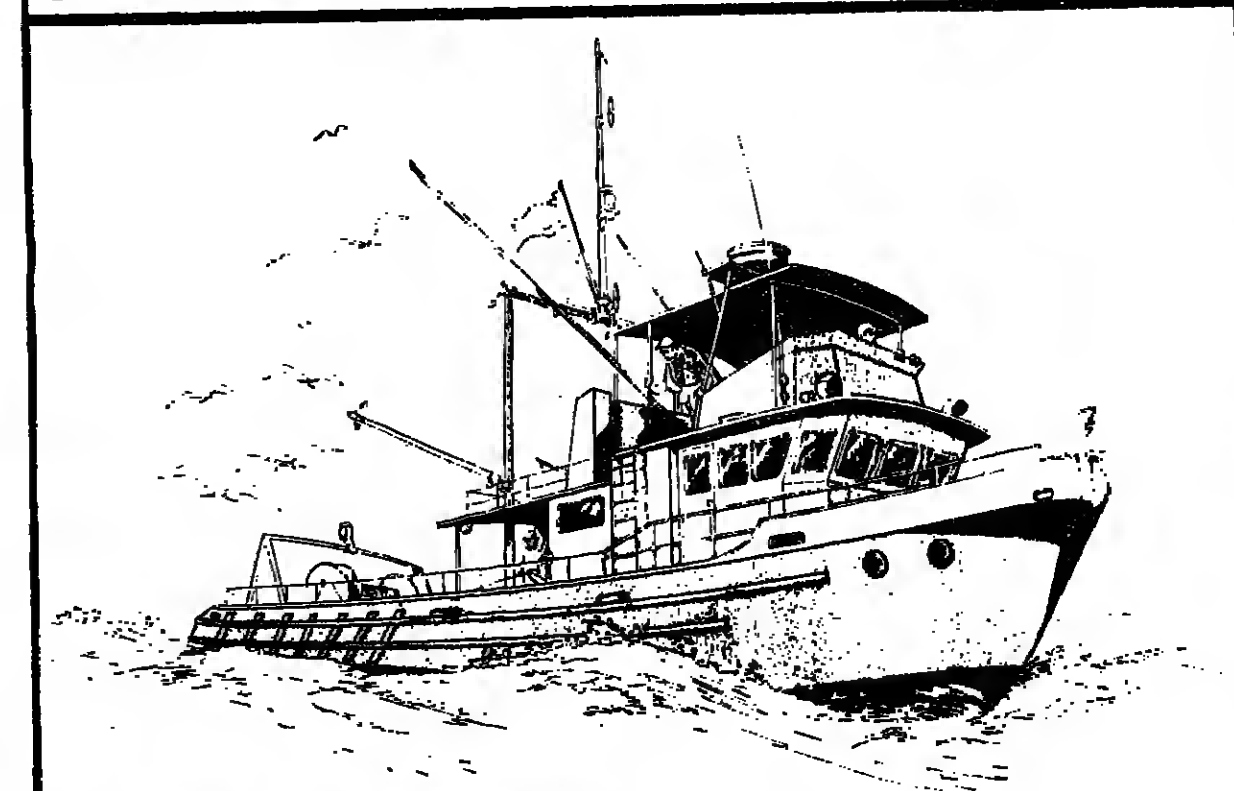
## IN BRIEF

THE US federal government has set up a special "task force" to review problems of the groundfish industry in New England. Its chairman is Joseph W. Slavin, assistant director for fisheries development in the NMFS. An important job of the task force will be to look into the prospects for developing alternative species to those presently in danger of being overfished.

THE Asian Development Bank is lending US\$14 million to South Korea for the improvement of fishing ports. By 1981 this is expected to increase accommodation for fishing craft by about 50 per cent.

A WORKSHOP on sanitary practice in seafood production is being held in Norfolk, Virginia, U.S.A. from May 22 to 25. It is sponsored by the National Marine Fisheries Service and the Virginia State University.

## Seacrete for Solomons



THE SUCCESS of a ferro-cement fisheries research boat built in Britain for operation in the West Indies has helped bring its builders an order for a 60 ft. (18.3 metre) boat. The order was placed with Windboats Marine Ltd. of Wrotham by the government of the Solomon Islands.

Using their special Seacrete process, Windboats have built a number of work and pleasure craft. These include the 65 ft. (19.8 metre) *Caranx* built in 1970 for the University of the West Indies in Kingston, Jamaica.

"The latest order was received," says Windboats, "as a result of the performance of the highly successful *Caranx*."

James and Turner, Naval Architects Ltd. of Wrotham designed the Solomon Islands research boat. Hull, bulkheads, deck, floors, bulkheads and water tanks will all be of Seacrete ferro-cement. The superstructure will be of aluminium alloy and includes a flying bridge.

## Skid mounted

The main engines will be two Gardner 6LXB diesels rated at 127 bhp each. All machinery installations will be skid mounted.

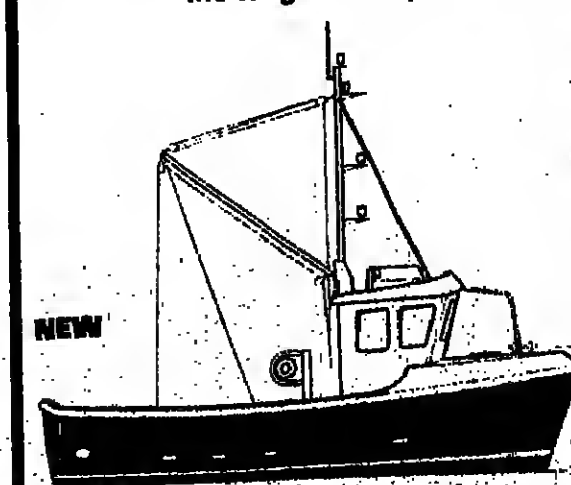
For handling catching gear during her research and test fishing voyages in the South Pacific, the boat will have an hydraulic winch and new drum.

A refrigerated hold of 500 cu. ft. (17 cu. m) capacity will enable her to bring catches ashore.

Accommodation will be provided for a crew of 12. Windboats say that there is a "distinct possibility" that the boat will travel out to the Solomon Islands under her own power.

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# Herrings for all

**POSITIVE** management (enhancing stocks by artificial methods instead of merely controlling the catch of natural stocks) could help to restore Europe's herring resource.

According to Soviet marine biologist Ivan Bukhanovich, the time has come to give something to the ocean before counting on reaping its rewards. He points out that in the north-east Atlantic fisheries the herring catch has dropped by from 67 to 75 per cent, compared with 1965/66 when it totalled four million tons.

If herring is to remain a staple food,

## the new dream of Russia's fish ranchers

fisheries have to be internationally regulated by setting limits and establishing minimum sizes of fish taken. But even these controls will not guarantee the continued availability of herrings in the Atlantic.

The Soviet Union, therefore, is investigating stock enhancement at the

Murmansk Institute of Marine Fisheries and Oceanology. The stock used is the Atlantic-Scandinavian and the experiments indicate that "there could be enough herring for all."

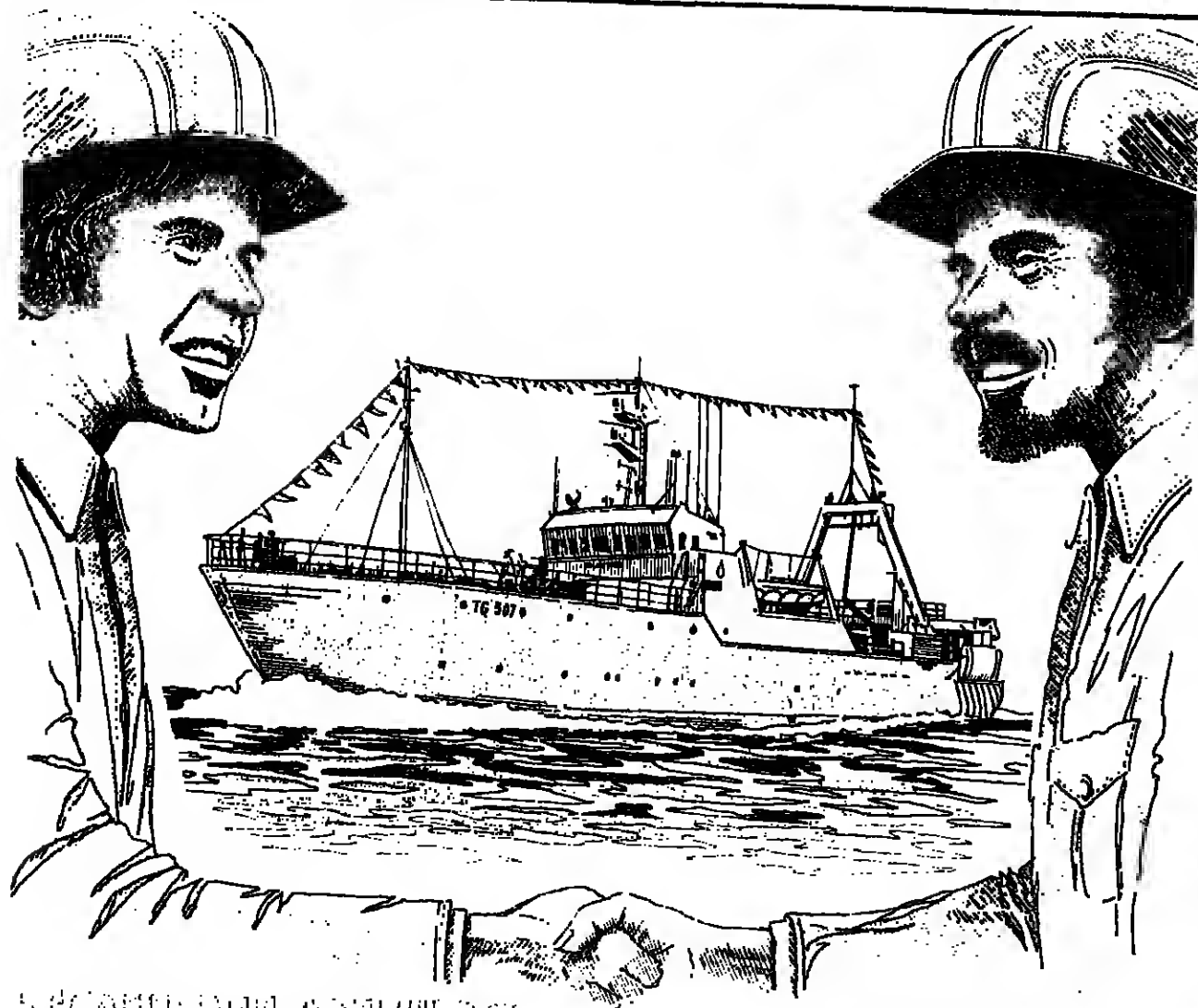
In the initial stages, the cost of fry breeding has been high and it is not known to which coast or territorial water the fish

will swim. But it has been found that by mortality in artificial spawning areas in the White and Barents Seas is a thousand times less than in natural conditions.

"A catch of only one per cent of the mature fish would repay the cost of artificial breeding," says Bukhanovich. "Placed on a commercial footing, artificial breeding could go a long way towards compensating for the natural fluctuations in the herring population and make it possible to restore and multiply the stocks. Fish breeding, not hunting, would thus become the basis for exploiting the world's oceans."

In another project, Soviet scientists are claiming success in experiments to farm mussels in far northern waters.

The tests were done by the Arctic White Sea Biology Station of the USSR Academy of Sciences.



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## Mozambique aims high

A SURVEY and development started last year could increase earnings from the Mozambique fish industry by more than US\$20 million, according to Director of Fisheries Sergio Basulto.

There were indications, he said, that Mozambique could become self-sufficient in fish, and that exports of catch such as shrimp could put the industry into a top place among earners of foreign exchange.

Participating in surveys of the Mozambique economic zone have been vessels from FAO, East Germany, Norway and the USSR.

Two state enterprises were established in 1977 — one to catch fish and the other to market it. The catching organisation has about 60 vessels operating from Angoche, Quelimane, Beira and Maputo.

## Dutch loan for Kenya's survey ship

A WELL-EQUIPPED multi-purpose fishing vessel is now carrying out development on stocks off the Kenya coast. Named the *Kusi*, she was bought from Holland by Kenya using a loan provided by the Netherlands government.

She was ordered last year when Tanzania took possession of an earlier research and development ship jointly owned within the East African Marine Fisheries Research Organisation.

The *Kusi* is 40.5 metres long overall and is powered by a 1400 hp engine. Cold store capacity is 120 tons.

## In brief

A SRI LANKA trade delegation visiting Pakistan their country was keen to see as much dried fish as Pakistan could supply. Sifted for leader of the delegation, Sri Lanka was taking about 10 per cent of her dried fish requirements from Pakistan.

DURING 1977, Poland produced 26,000 tons of fish from freshwater farms. This was to add about 8,000 hectares of ponds and lakes to Polish fish farm capacity and should boost production 46,000 tons in 1980.

THE Tunisian fish catch fell from 49,000 tons in 1973 to 53,700 tons last year. The weather over three months in the middle of the year prevented the industry reaching the 1977 catch target of 56,000 tons.

THE Kars Development Corporation of the Philippines and a Hong Kong company have prepared a joint venture to produce milkfish. It will raise the fish in a 69 hectare area and will be assisted by technical experts in milkfish breeding from Taiwan.

WHEN Canada's separate fisheries departments later this year, its fishery servant will be the Tansley, who gained a reputation as an administrator, serving as a federal government and price control

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# ONE WAY OF USING WIDER LIMITS

## comment

A QUESTION put last month in the European Parliament to the Common Market Commission reveals more than thousands of words of explanation why it is proving so difficult to reach agreement over fishery policies in the EEC.

Willi Muller, a West German, noted that British fishermen were selling their catches of mackerel to Soviet vessels off Cornwall. He had heard that the transactions were worth some £2 million. What steps, he asked, had the Commission taken to "punish these violations of Community regulations."

He also wanted the Commission to "remedy this situation" and prevent the recurrences of practices which "are not in the interests of the Community."

We do not know who briefed Herr Muller. We do know that German canners have been having a hard time recently. We know also that there was nothing to stop them buying all the mackerel they wanted from a catch that, in the seven-month season just ended, amounted to 174,000 tons.

The Russian and other Eastern European factory ships took only a small part of this catch. They paid well and promptly and they insisted on good-quality fish. They enabled a number of enterprising British skippers and their crews to find one alternative to the herring fishing they have lost, and to the cod taken away from them by 200-mile limits in Norway and Iceland.

As far as the British industry is concerned, the mackerel that went into the Russian factories was exported as surely and almost as

profitably as fish landed at a British or other EEC port, processed, packed and shipped.

Eventually perhaps this is what will happen to this very important new leading marine resource. But in the meantime, the Russians and their British suppliers have shown a way in which a fishery might be helped to develop without prior expensive commitments to processing plant ashore.

German and other canners might regret not having the chance of buying from fishermen desperate to unload unwanted catches at any price, but then fishermen would do the same if they had the chance.

We do not agree with some of

the attitudes of the British government and fishing industry towards the EEC. We wish that Fishery Minister John Silkin would find a way of settling the dispute over limits and quotas.

But on the issue of selling mackerel direct to the Russians, we cannot see how this violates either the spirit or the letter of EEC regulations. It is also an activity that might well be considered and emulated in several other fisheries around the world. Where one country has the floating factories and the outlets and another country the fishermen, the boats and a protecting 200-mile limit, there is everything to gain from working together.

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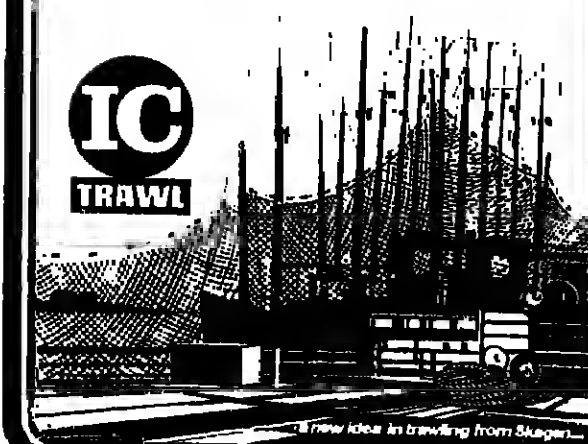
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## EEC catch quotas — the battle still rages

IT WAS no go again when the EEC Fisheries Council met in Luxembourg on April 24. The meeting, reports our EEC correspondent, was brief with no real discussion of the internal fisheries regime.

As they could not agree on the allocation of quotas among member states fishing in Norwegian, Faroese and Swedish waters, the Ministers decided to extend the interim regimes for these three countries an extra month until May 31, 1978.

They also decided to continue talks on this and other fisheries problems at the Agricultural Council in Brussels on May 21 and 22.

### Accepted

Most of the brief meeting was taken up with a discussion about whether to extend the interim regimes by one or two months.

Eventually the commission proposal supported by the UK was accepted.

The commission argued that a one month extension would keep up the pressure for reaching agreement on a common fisheries policy and would also be more acceptable to Norway, the Faroe Islands and Sweden who are impatient with the Community's

inability to agree on an internal regime.

After the meeting, John Silkin, UK Agriculture and Fisheries Minister, said that it was impossible at this stage to reach agreement on the share-out of community quotas in Norwegian, Faroese and Swedish waters as this was linked with the agreement on the internal regime.

For EEC fishing in

Norwegian waters north of the 62nd parallel, the Commission proposed that the UK should receive 41,300 tons of cod and haddock (70 per cent of EEC quota).

In Faroese waters the UK would get 6,830 tons of cod and haddock (97.5 per cent of EEC quota).

But British experts explained that the proposed

quotas did not compensate UK for losses suffered by exclusion from the Barents Sea; the partial closure of the Faroese waters.

They claimed that quotas were less than the UK's 10-year moving average and represented a drastic cut on the quota share agreed last September for three countries.

## Those £330,000 smiles...



Zygyd Braun of Navimora, Poland, was in London last month to sign a £330,000 contract for Decca Navigator receivers and automatic plotters. With him in this picture are J. Best, Decca marine sales manager (left) and Commander G. L. Coles,

director of the marine division (right). The contract covers Decca equipment for 42 Polish fishing vessels operating in Baltic Sea. Some 500 Polish fishing and merchant ships are equipped with Decca Navigator receivers.

# Can Philippines meet demand for fish?

## Industry queries catch targets

FISHING people in the Philippines are sceptical about a claim by the Director of the Bureau of Fisheries and Aquatic Resources that the domestic industry will meet the country's fish requirements by late 1979.

Since 1970, when the first formal development plan was announced, claims of impending self-sufficiency have again and again proved elusive. In 1970 when fish production had been growing at the rate of 3.8 per cent a year, the Philippines Fisheries Commission put forward a plan to boost this to 5.8 per cent between 1971 and 1974.

By 1973 the rate was still around 3.8 per cent when a four-year Expanded Fishing Production Programme set 1975 as the year of self-sufficiency. Then in 1974 another programme (covering 1975-78) looked for a 6.6 per cent growth rate. It also predicted that by 1977 the industry "will be able to meet effective demand requirements and produce some surplus for possible net exports."

## CANNERY SALES RECORD

BRITISH Columbia Packers Limited tallied up record sales of \$213 million in 1977, yielding a net profit of \$8.29 million — the second highest profit on record.

In the company's 50th annual report, chairman R. I. Nelson attributed the favourable figures to good market conditions and satisfactory production levels. He said the outlook for 1978 was encouraging with markets remaining firm and production expected to be at least average.

The company purchased \$60 million worth of fish in 1977 from 4,000 fishermen. It invested \$7.15 million in new fixed assets — mainly more sophisticated equipment.

Now the latest programme, called the Integrated Fisheries Development Plan (1978-82), sets a growth figure of 5.5 per cent a year. But total production in 1976, at 1.39 million tons, showed a rise of only 3.2 per cent over that of 1975. And in 1977 the increase was even smaller.

At this rate, production in 1979 could fall about 120,000 tons short of the demand estimate of 1.65 million tons.

### Doubled

Domestic demand has continued to exceed supply despite the doubling of the fish harvest since 1965. Per capita consumption has risen by almost 50 per cent to 30.7 kilos, which is more than double the world average and places the Philippines high among the fish consuming nations.

The Food and Nutrition Research Centre estimates that the fish intake should be nearly six kilos more. This is because Filipinos eat little meat and fish provides more

than half their diet of animal protein.

Despite the hopes of the planners and considerable aid from various sources, the industry in the Philippines is beset with problems. These include lack of proper infrastructure for ports and services, an inefficient marketing system and an obsolete fishing fleet operating at well below capacity. FAO estimates that the catch by commercial fishermen is only

about 40 per cent of its potential.

Navotas harbour, near Manila, remains the only fishing port in the country specially built for the distribution of fish. It handles 40 per cent of the country's landings. An average of 15 vessels come in daily, but there is no accurate fish count and catches are only estimated. Fish are sold by whispered bids, a system favouring the middleman.

A feasibility study into the building of five more harbours has been completed by a Japanese consortium but no further plans for their construction have been announced.

So-called "municipal" fishermen supply the bulk of the Philippines catch. Working in boats of less than three tons in coastal areas and using simple gear, they accounted for 55 per cent in 1976.

## Smaller Polish tuna seiner

WHILE the North Shipyard in Gdansk builds a series of large tuna purse seiners for the Soviet Union (see *ENI*, April, 1978), another Polish yard has introduced a smaller tuna vessel which could be of considerable interest to developing countries.

This tuna vessel is 16 metres long and is of glass reinforced plastic (GRP) construction. It is being moulded and fitted out in the Ustka yard, whose products are marketed through the Nwimore organisation.

The Soviet Union is buying two prototype vessels of this class for its fleet, and production of a series is being prepared in the modern, high-capacity Ustka yard.

# ARENCO SKINNER

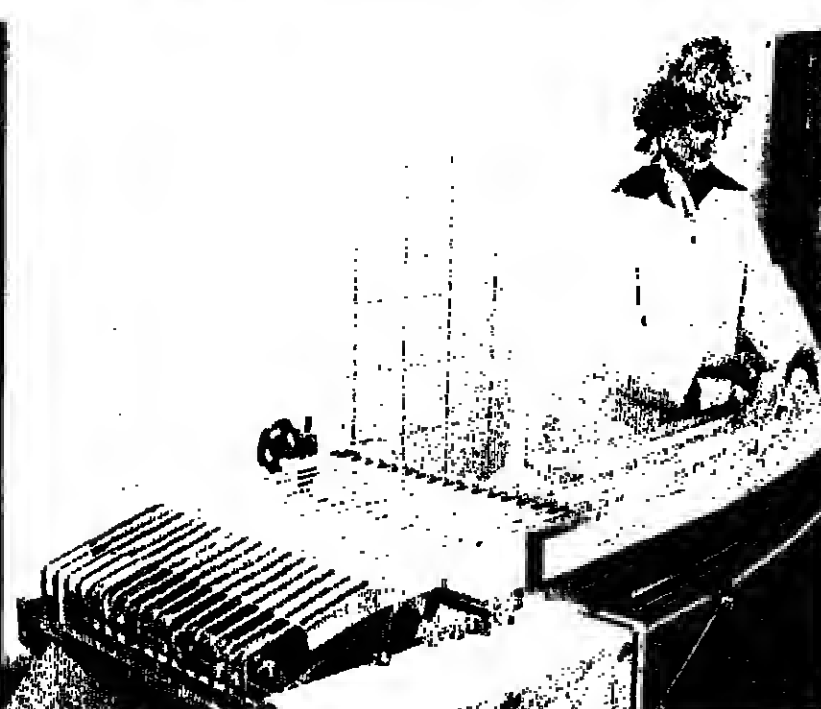
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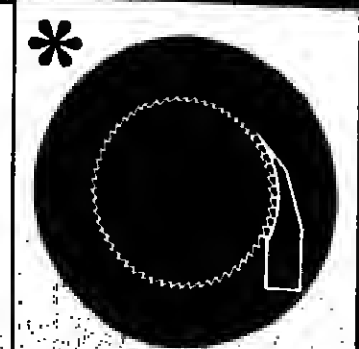
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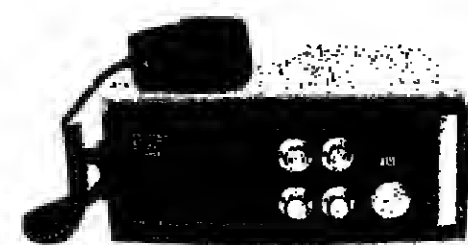
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# Wesmar news

## IRISH HERRING SUCCESS



The top Irish pair trawler "Azure Sea."

ONE OF the top pair trawlers in Ireland has nothing but good words for the effectiveness of his WESMAR SS220 scanning sonar. According to Des Faherty, the SS220 is clearly superior to other sonars in its detailed resolution of underwater targets.

Faherty trawls for herring along the west coast of Ireland

out of Killybegs. His 80-foot trawler, the *Azure Sea*, was equipped with the high frequency WESMAR SS220 in 1977, which has resulted in significantly larger catches. The SS220 is an excellent fish detection instrument for the difficult-to-locate herring. The herring are in such scattered schools that many sonars are



WESMAR sonar has meant larger hauls for the "Azure Sea."

unable to detect them. The *Azure Sea's* partner boat has a competitive sonar, but must rely on the *Azure Sea* and its WESMAR sonar to locate the scattered herring.

WESMAR's SS220 high frequency sonar provides detailed resolution of underwater targets. This has proved especially valuable for locating scattered schools of fish. The 360 degree sweep and tiltable transducer combine with two modes of CRT display to give Faherty further capability to successfully harvest the herring.

Just recently Faherty installed WESMAR's newest scanning sonar, the SS230 low frequency sonar in the *Azure Sea*. Faherty has found tremendous success with his WESMAR scanning sonar in the past and confidently expects to continue that pattern in the future.

## Eureka skipper's autopilot handles the job

AFTER a long search for an autopilot that would be durable and effective in his trolling operation, Maurice Viand of Eureka, California, has found that WESMAR's AP900 autopilot more than meets his needs.

The AP900 proved itself recently during an emergency towing operation. Viand was trolling for salmon off Brookings, Oregon, when he was asked by a friend if he would tow his disabled 40-ft. trawler, *Nighthawk*, the 150 miles back to Eureka.

Viand had no previous towing experience and his *Key Lynn* is only 34 ft. long, so he was a bit apprehensive. Nevertheless, he finally agreed to do the job, dialed in the course on his AP900, and headed down the coast with his tow.

"Towing was quite new to me and frankly I was a little nervous," said Viand, "but I trusted my course and the AP900's ability to hold that course."

The trip began in clear weather and calm seas, but fog soon settled to completely obscure the view. Viand had to trust the AP900 autopilot,

particularly through the tricky waters along the Saint George Reef. The fog never cleared, but the AP900 held the *Key Lynn* on a precise course.

When he first bought the *Day Lynn*, Viand found it already outfitted with a competitive autopilot. It soon failed, however, and he bought another autopilot. It too could not withstand the everyday wear and tear of Viand's trolling operations.

Finally he tried WESMAR's AP900 and has been satisfied ever since. According to Viand, the AP900 is easy to use and calibrates. Especially during his trolling operations, he finds that he can set a course and be

assured that the AP900 will keep him on it.

The AP900 is a full force autopilot that "sees" electronic compass to instant course indicator. Because there are no mechanical discs, the AP900 responds quickly to new course instructions and then holds steady course even in rough waters.

"It took me 16 hours to learn Eureka and I didn't touch the helm of the *Key Lynn*," Viand said. "I credit this WESMAR AP900 autopilot with my previous autopilot could not have handled the job."



Maurice Viand adjusts his AP900 autopilot.

## VERSATILE NEW TRAWLER

A MAJOR component of the advanced electronics installed in David Harville's new 85 ft. stern trawler *Linda Jeanne* is WESMAR's dual sonar system. This system provides the versatility needed for Harville's bottom and mid-water trawling along the west coast of the United States.

Harville fishes for Tom Lazo Seafoods of Eureka, California. The *Linda Jeanne* was designed for both mid-water and bottom trawling. WESMAR's

dual sonar system will help Harville use bottom trawling techniques for sole and mid-water techniques for hake.

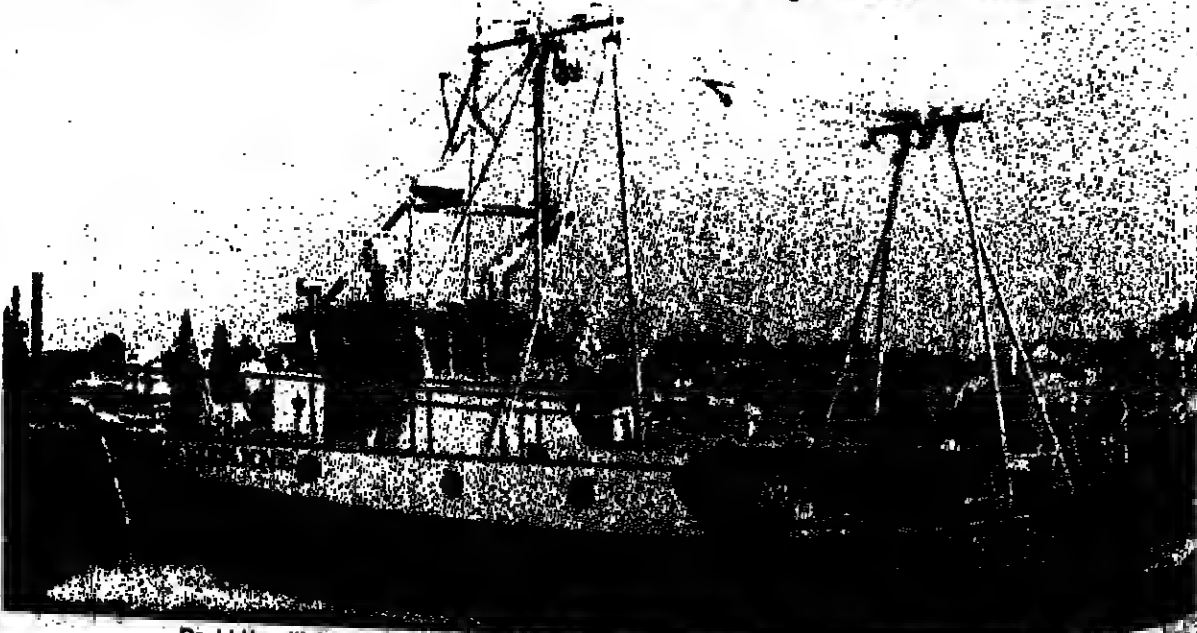
WESMAR's dual sonar system consists of the SS220 high frequency sonar, the SS230 low frequency sonar, and the R60 chart recorder. Harville now has the detailed resolution of high frequency sonar together with the range capability of the low frequency unit.

Both sonars sweep 360 degrees around the vessel or scan a specific sector of water and feature digital readouts of

target depth, horizontal distance, and alert range. Both sonars also utilize WESMAR's patented transducer stabilization system for efficient operation in rough waters.

The R60 chart recorder standard with the SS220 Targets displayed on the SS230's CRT screen are also recorded on the R60 plot paper. This provides additional information about target depth and improves target location at longer ranges.

There is increased versatility



David Harville's trawler, "Linda Jeanne," is equipped with WESMAR's dual sonar system.

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Telex: 329509, Cable: WESMAR

THAT editor's nightmare — the big news story just after his paper has gone to press — gave me a few more grey hairs this month.

The story comes with the release of the long-awaited report on the British fishing industry and its future. This was compiled by a sub-committee of the House of Commons and is the result of more than a year's assiduous gathering of evidence.

Almost everyone I know with something to say about British fishing and/or with ideas about how it should develop has appeared before the committee.

Its parliamentary status gave it considerable powers to call in information. Its members have travelled to most of the main fishing ports, and it did appear to make a real effort to get the views of fishermen large and small.

Whatever it says, therefore, the report must have impact, and it could well influence government decisions on such matters as subsidies, vessel grants, which ports will be helped to stay in fishing, and the role in the industry of the White Fish Authority and the Herring Industry Board.

The official release date was May 4, but inevitably there have been a few leaks. One appeared in a Lancashire paper and was picked up by my colleagues of our weekly *Fishing News*.

It seems that the committee is critical of the government for its lack of concern over the place of the fishing industry both as a provider of food and a creator of jobs. This will, of course, win applause from the industry. Less welcome, no doubt, will be the view that there is little hope for at least two major trawler ports — Grimsby and Hull.



We must wait until next month for a full review. As is usual with such reports, the many people who gave evidence will be among the first close readers, to find out how their proposals were accepted and to learn whether British fishing is to be given the chance it needs.

The fishing industry, I find, never lacks good speakers in its cause. This is particularly so in Scotland, where an ability to fish successfully seldom spoils the gift for clear and forceful expression. Canada and the United States also have their eloquent defenders of the right of fishermen to a fair share of the resource and of government encouragement.

Listening to Scottish tough-talking to the British committee in the rather solemn surroundings of the Commons, I wondered how chairman Dr. Edmund Marshall and his colleagues would have responded to the American industry's Lucy Sloan and Barry Fisher.

Barry is a big man with big ideas. He took a Master's degree in English at Harvard in between fishing careers. He now fishes out of a port in Oregon and believes firmly, and vociferously, that the United States has the fishermen and the ability to make use of nearly all the stocks within the new 200-mile limit.

He talks extremely well with an epigrammatic incisiveness. And the burbs strike home. Barry is at his best on the last day of the seminars at the yearly US Fish Expo, when industry and government get together to say what they think of each other.

Complaining at last Fish Expo in Seattle that US Coast Guard ships were stopping and inspecting American boats while leaving foreign vessels alone, Barry said: "I don't like to see foreigners in our waters given immunity to prosecution that I don't have. The US government is treating me and other fishermen as second-class citizens."



"We must make sure that Congress knows what we want and why we want it."

Lucy Sloan and Barry Fisher put the case for American fishermen and their industry at a US Fish Expo seminar.

## from the dockside by PETER HJUL

Matching Barry in epigram and lucidity is a lady less than half his size who does the work of ten men in promoting the cause of American fishing. Lucy Sloan was a freelance writer living and working in the Boston area when, in the early 1970s, she realised that the move for wider limits was getting bogged down.

She also sensed, along with others at the time, that fishermen should have a single strong voice. This has come with the formation of a national federation of some 30 regional fishermen's associations. Working only part-time at first, Lucy took the federation's urgent message to Washington.

Eventually the limits went out, but the federation's job may be only beginning. As its executive director, Lucy is a persistent critic of the way US fishing is administered, by what she regards as a small and rather feeble arm of the Commerce Department. As in Britain, fishing in America is changing and many of those involved want to see it given much more positive direction and support.

Writing recently to an official in charge of the President's Reorganisation Project, she noted that the US was the only major fishing nation which was so split in its attitude to fish that it saw them as food for bargaining by the Department of State and as "primarily objects of scientific curiosity" for the NOAA/NMFS. And fishermen, far too often, seemed only to be regarded as undesirable perturbations in the biological system.

"We think," she said, "that better understanding of our industry as a food producer would further the improvement of the investment climate we are just beginning to enjoy."



Second place

A further complication is that commercial fishing in the US often gets pushed into second place behind sport fishing interests. Quoting one of her fishermen members, Lucy said: "It is high time we began to distinguish between those who produce food and those who merely play with it."

Since our report last month on fisheries development work in the Sudan, we have learnt that Ross Seafoods of Grimsby is carrying out a survey of the country's shrimp resources in the Red Sea under an agreement between the Sudan government and Britain's Ministry of Overseas Development.

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## Fisheries training

# Learning to teach them back home



28-year-old Lynette Bradley from Belize with Perkins instructor Reg Webb during the three-week long marine diesel engine course.

ADVISING fishermen on the best techniques, the boats to use and the power unit to suit their needs is a job of growing importance for Indonesian fisheries officer, Ibnu Hajar Zain.

Based in Samarinda East Kalimantan, the Indonesian part of Borneo Island, he is a specialist in fishing techniques. "During the 1970s, fishing in our area has become much more mechanised," he said.

"The trend is towards 30-ton boats with inboard engines."

Ibnu is one of 24 fishery officers from 14 countries presently in the United

Kingdom taking part in the 1978 one-year diploma course, sponsored by the Ministry of Overseas Development (see FNI, March 1978).

The Fisheries Management Course is run by the Grimsby College of Technology, but participants attend instruction sessions in many different parts of Britain.

Among these is three weeks in Peterborough, England, where Perkins Engines has a fully-staffed and very well equipped training school providing instruction in engines and their maintenance. To another fisheries officer

on Borneo, Sulaiman Abu Bakar of the Sarawak state government, Malaysia, the kind of training given by Perkins was a new experience.

Like many of his colleagues, his discipline is marine biology, but he said that the Perkins part of the course helped him to "get a real understanding of the

workings of marine diesel engines, which we can pass on to our fishermen when we go back."

Lynette Bradley is the only woman on the 1978 course. She comes from Belize in Central America and is her country's first woman fisheries officer.

Fishing, she said, is not Belize's third biggest industry. She read zoology at the University of the West Indies and is now in charge of the government's fisheries research and development unit.

## DAY AT PETTERS

A day at the Petters diesel engine factory was also included in the list of visits for the fishery officers during their stay in Britain. The students were shown the Petter range of marine diesels and instructed on their use and suitability for small boats.

Steve Raynor, Petters' Regional Export Sales Engineer, who organised the day, said afterwards: "We welcome outside interest and we are always prepared to show people around our factory."



## Bank aid

THE People's Bank branch in Hambantota to small coastal village in the Southern Province of Sri Lanka is taking a lead in funding a training programme for young people in the fishing industry.

There is not enough room at the Crow's Island Training Institute, reports FNI correspondent Nalin Wijesekera, and so the bank's "realistic venture has been much lauded by fishing people in Sri Lanka."

For success in this venture, there are two further requirements. The first is intensive training in the handling and maintenance of valuable equipment. The other is for more fishery courses in the universities.

Fishery training courses previously provided on the island have been woefully lacking in technical component, despite the fact that the original blueprint for expansion stressed that fishery education should progress hand-in-hand with mechanisation.

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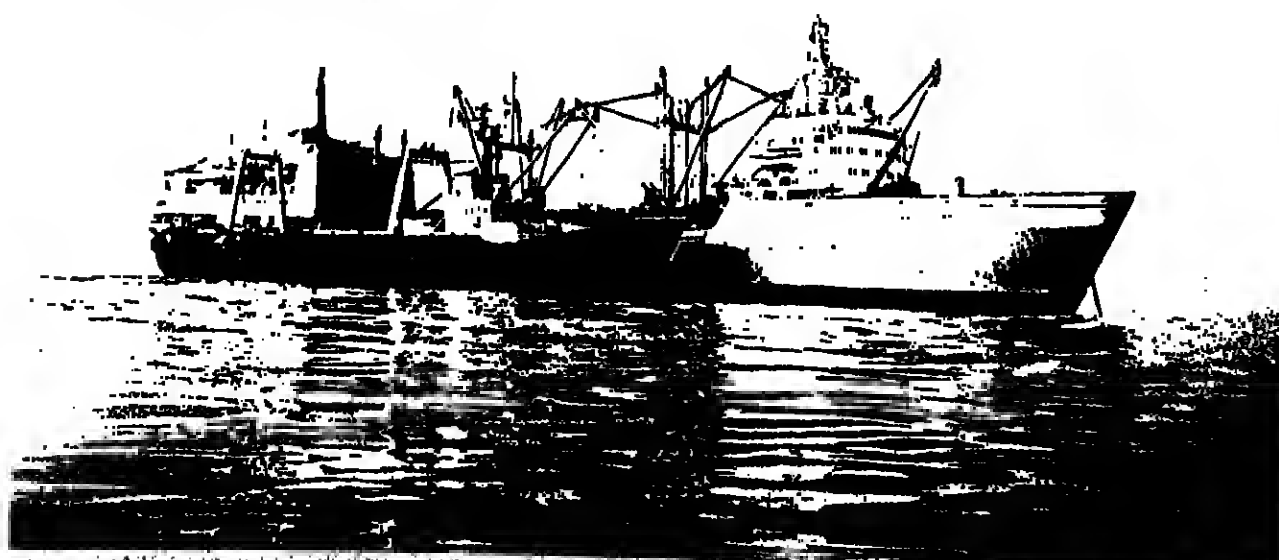
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FROM June to December this year, the British White Fish Authority will be giving 13 courses at its training centre in Hull and 16 in the mobile unit at ports around Britain. Ports to be visited include Ayr, Buckie, Fleetwood, Lerwick, Lowestoft, Mallaig, Whitby and Whitehaven.

During 1977, the WFA provided courses for 51 skippers and other people in the industry.

All the courses are designed to provide practical instruction on topics of direct importance to professional fishermen and others. They lean heavily on active involvement by the participants. With the exception of one on business management, they are free to members of the UK fishing industry.

People from outside the UK can also attend them. Details of fees can be obtained from the White Fish Authority (see Page 47).

The courses for the second half of 1978 are as follows: Fishing gear technology. This five-day course has been redesigned to meet more fully the requirements of different sectors of the industry. It is now divided in different horsepower classes: 20 to 150; 150 to 500; 500 to 1,000 and 1,000 hp plus.

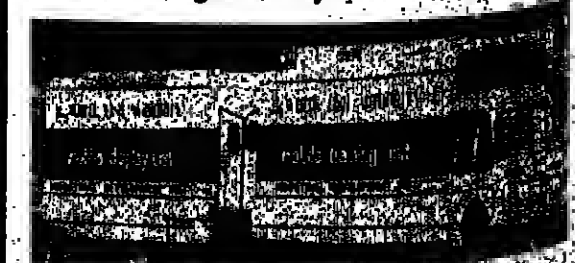
The course makes full use of the WFA flume tank in Hull as a demonstration facility, and the participants spend about 75 per cent of the course period performing experiments in the tank with different trawl models. The WFA now has more than 30 different models for demonstration, including single-boat and pair mid-water trawls as well as various bottom trawls.

Acoustic fish detection. This five-day course is designed for fishing skippers, electronics managers and others concerned with modern fish detection equipment. The programme includes fish behaviour, echo sounders, bottom expansion, net sounders and sonar.

Engines, electrics and hydraulics — inshore vessels. The aim of this five-day course is to help inshore fishermen to diagnose and rectify the simple faults which comprise most of today's breakdowns in the engine room and in small-boat hydraulic systems.

Some of the subjects covered are different types of engines (their advantages and disadvantages), control systems, turbo-chargers, electrical generation and distribution equipment, hydraulic power transmission, switches and power blocks.

Engines and hydraulics — middle and distant-water vessels. This five-day course is similar to the previous one described above except that it concentrates on the care and maintenance of electrical and hydraulic systems on larger vessels. Although a certain amount of theory is covered, the course has a strong practical bias and is designed to help engineers to recognise fault symptoms and imminent failures.



The White Fish Authority's mobile training vessel Eymouth on the Scottish east coast.



WFA instructor Steve Ridgeway with Ghanain student Sammy Asamoah during a recent acoustic fish detection course.

so as to reduce time lost in carrying out repairs ashore.

Coastal fishing. This new five-day course, introduced late last year, is designed mainly for skippers of very small inshore vessels, generally below about 150 hp. It provides instruction on small echo sounders, engines and hydraulics, fish behaviour, marine science and gear technology.

Marine science. This five-day course covers those aspects of oceanography, meteorology, marine biology and fish behaviour which are of direct relevance to commercial fishing. Topics covered include ocean currents and tides, fish migration, the ecological chain, reaction of fish to fishing gear, and the effects of the marine environment on fish behaviour.

Business management. This three-day course is designed to assist all levels of management in the processing and marketing sectors of the fish industry to improve personal and corporate performance in a variety of business situations.

Fisheries technology and management. This 12-week course is designed specifically for developing countries, with the aim of giving the staff of government fisheries departments a general appreciation of all practical problems involved in the administration of national fisheries development policies.

Much of the course material concerns the practical application of fisheries development and management programmes in the field. The main areas of study are fisheries management, fish location and abundance surveys, fishing gear technology, fish handling and preservation, fishing vessel technology, marine science and fish farming.

The WFA is also developing a new course concerned with fishing gear design and net making. It should be available in the early part of 1979 and will be of special interest to skippers of small vessels and others who make their own nets. It will be of about three days' duration and will be held either at the WFA fisheries training centre in Hull, or at various ports around Britain.

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## Fire ends sad saga of 'Margaret L'

THE SAD SAGA of the world's largest tuna purse seiner ended dramatically in March when the 262 ft (79.88 metre) *Margaret L.* sank in the Pacific Ocean 600 miles off Costa Rica. She was, reported *The National Fisherman*, "the victim of a fire of unknown origin."

Her crew of 20 escaped in the ship's net skiff when the fire broke out. They were picked up by the Congo-registered tuna ship *Manicongo* and the California vessel *Anna M.*

The *Margaret L.* had the misfortune to enter the tuna industry at a bad period, when catch controls became more stringent.

She was built far from the usual tuna seiner yards in Sturgeon Bay on Lake Michigan in Wisconsin. A San Diego man, Andrew Lococo, sold his restaurant to make the down payment on her. When she left the yard of Peterson Builders in

1972, she was regarded as one of the finest seiners afloat.

But Lococo died the following year and the ship had a series of mechanical troubles. She was taken into receivership after some poor fishing trips.

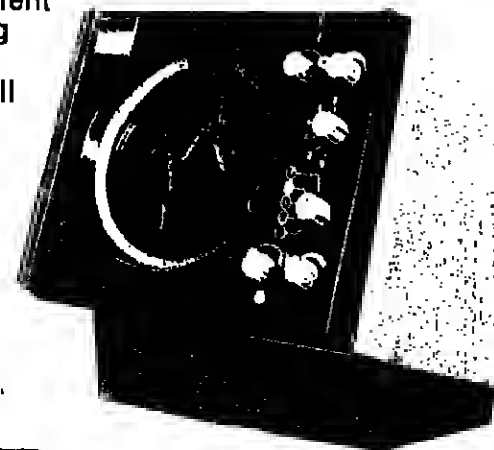
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## Keep out of coastal waters

AS BRITISH distant water trawlers have had to withdraw from traditional areas cut off by 200-mile limits, some owners have been looking to fishing outlets in waters closer home, in the new economic zone of the UK and EEC.

But these moves are resented by British coastal fishermen whose fears were clearly expressed in Pittingweem on March 31 by Gilbert Buchan, president of the Scottish Fishermen's Association.

Calling on the big trawler companies to stop their encroachment on inshore fisheries "with an unplanned building programme," he said "big capital and high finance are creating an additional problem in a sea which we must all acknowledge has been very badly overfished."

### Control

He urged that the strictest possible control be immediately exercised to prevent any further escalation of deep-sea company and fleet fishing in inshore waters.

There was no point in the Department of Fisheries talking about conservation and stock management if

there was an unopposed building programme. He called also for a de-watch to be kept on industrial fishing.

"What is the sense of a conservation or management proposals," he said, "if we continue to have the constant destruction of immature consumption species by industrial fishing."

### Balance

"I believe that until we restore the balance of nature the problem will remain. If we do it nibble at it while the destruction of the North Sea goes on."

He accepted that the harvesting of species such as mackerel, sprats and the whiting for meal plants was becoming a growing part of Scottish fishing operations. A new breed of fishermen had emerged.

"This must continue to happen," he said, "but it is essential that we have a hand in shaping the future while, at present, the material scramble for wealth goes on without control."

"Is it not time once again to sing loud and clear, the message that there is enough for your need but not for your greed?"

## SALMON LINE MOVES WEST

SALMON from the rivers of the North American Pacific coast should get almost total protection from Japanese fishing on the high seas under a change proposed by the International North Pacific Fisheries Commission.

Set up in the early 1950s, the Commission has an objection line at 175 degree east longitude in the Pacific, east of which the Japanese do not fish herring. But some salmon move west of the line. In the meantime an amendment to the Convention on the High Seas, which the United States precipitated, was agreed at the INPFC Convention when she filed notice of withdrawal by her 200-mile limit law.

The withdrawal would have taken place in 1976. In the meantime an amendment to the Convention was worked out and the boundary will now move several miles to the west.

In exchange for the concession they have made, Japanese fishermen will be allowed to retain quotas for fishing within the United States 200-mile zone.

## CATCH VALUE—THE TIP OF THE ICEBERG

SPEAKING for the eastern New Brunswick area, E. R. Gaudet referred to a problem causing concern in Canada's Maritime provinces.

The fishing fleet in New Brunswick and throughout Atlantic Canada was, he said, operating at well below capacity.

### Some success

According to Walter Kuzak, the federal fisheries department's area manager for southern New Brunswick, moves to raise the value of catches were already meeting with some success, most notably in the Bay of Fundy herring fishery. There, prices had trebled between 1975 and 1977, rising to 110 dollars a ton. This had been accomplished by shift from selling more than 80 per cent of herrings to meal plants to selling 98 per cent for food.

Sandy Maclean, a department marketing specialist, said that the Atlantic area had only "touched the tip of the iceberg." In adding value to fishery products, the value of squid exports to Japan alone could increase tenfold in the next few years.

## Why Canada must control fishing

A CANADIAN fisheries scientist has predicted that fish stocks in the north-west Atlantic will never again reach the legendary levels of the days of the early fishermen and explorers, reports correspondent Alex Binkley.

The main reason is that the fishing effort would have to be sharply cut and such a reduction would not be worthwhile, said Dr. B. S. Muir, head of the federal fisheries department's resource branch for the Maritime provinces.

"These historic situations... were at a time when we didn't have large trawlers," he explained.

The careful conservation quotas now in force will allow stocks to rebuild with cod and pollock stocks expected to nearly double by 1985. But any attempt to increase the fishing effort at the first sign of improvement must be resisted because scientific knowledge is still lacking in many areas. Too hasty a

Catches such as this haul by a Canadian mid-water stern trawler will prevent stocks ever returning to their levels of the years before modern fishing methods. But conservation measures within the Canadian EEZ are aimed at maintaining rich fisheries in the north-west Atlantic.

growth in fishing could send stocks plummeting downward again.

Rebuilding has a good chance "because we are putting on lots of safeguards." Eight or 10 years ago, vessels could just go out and fish with no regulations.

Canada wants fishing quotas and regulations outside the 200-mile zone to parallel those of the United States. Within the zone to make sure efforts to rebuild badly-depleted fish stocks are successful. Japan and several European countries had balked at the

provision, fearing Canada was trying to increase her zone through "creeping jurisdiction." Such opposition forced her to postpone last autumn her initiative for the creation of the north-west Atlantic Fisheries Organisation.

NAFO was to have replaced the International Commission for the North-west Atlantic Fisheries (ICNAF). Once the European nations are signed up, Canada may simply offer the NAFO convention for signature.

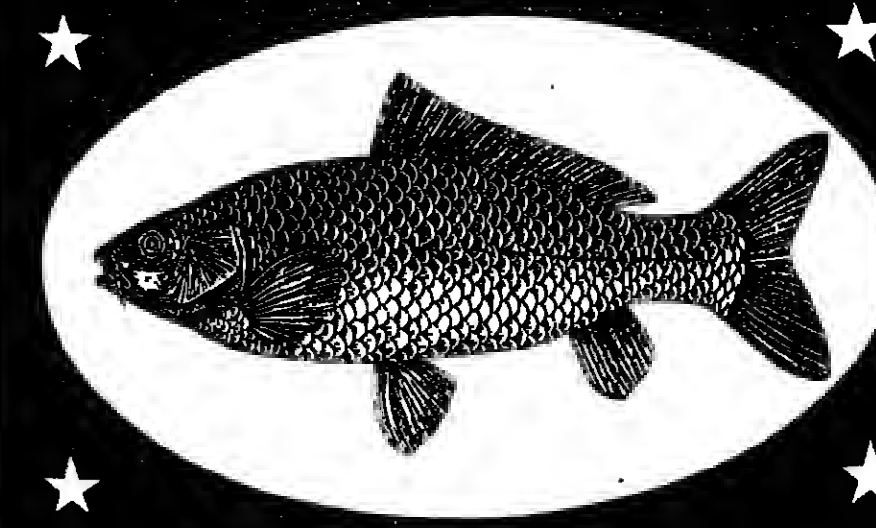
NAFO would oversee fishing on grounds that account for 10 per cent of the annual catch in the north-west Atlantic and provide a forum for fisheries scientists to assess the health of stocks.

Meanwhile, Canada and Japan have agreed on a bilateral fisheries treaty to allow Japanese fishermen to continue operating within the 200-mile zone. This leaves only the European Economic Community to sign such an agreement. The Canada-Japan treaty was concluded in early April and Canadian officials said afterwards that their attention would now centre on the Europeans.

Several rounds of talks have been held between the EEC and Canada and it is believed that no major obstacles stand in the way of an agreement.



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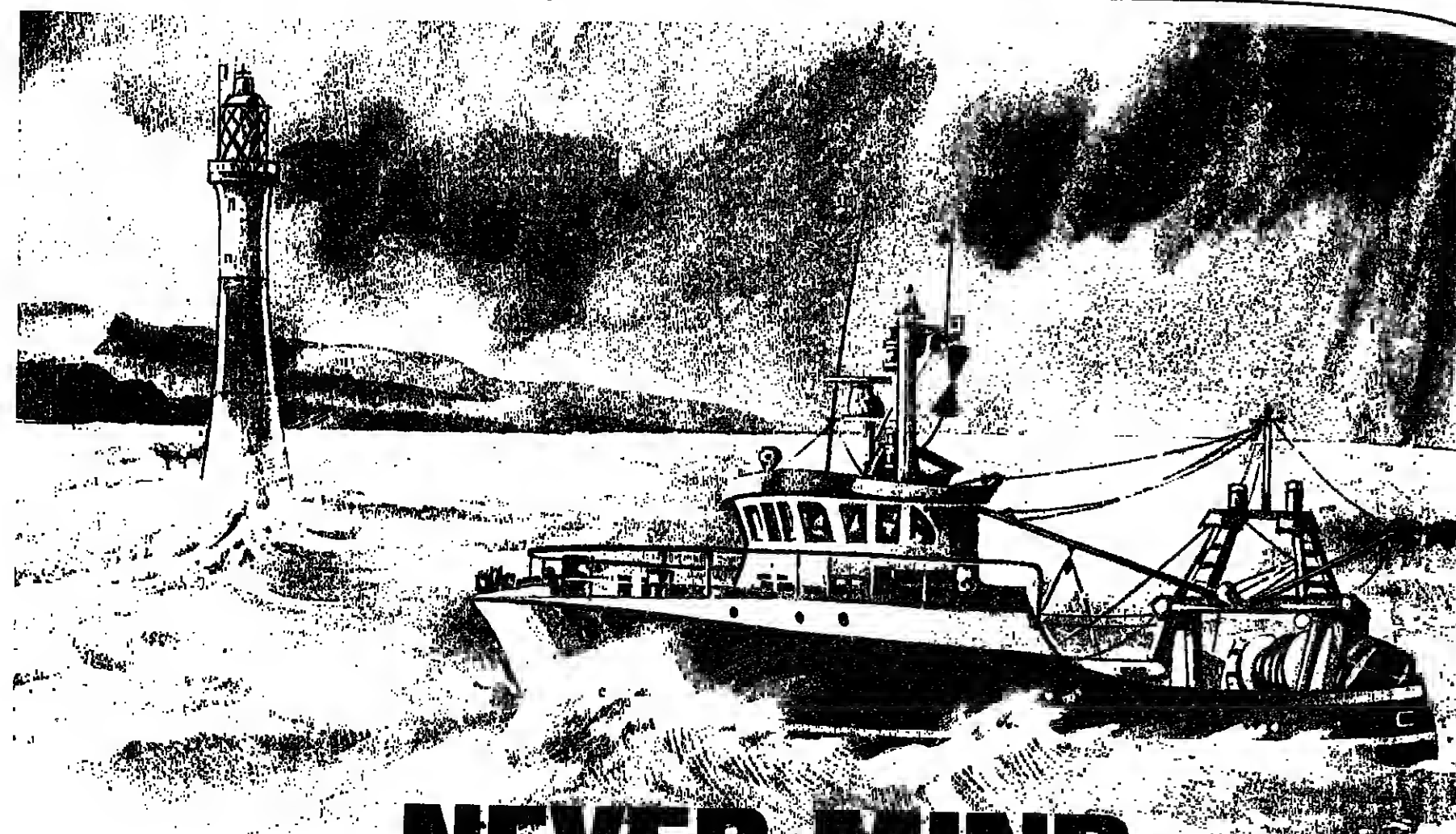
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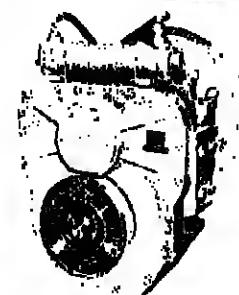
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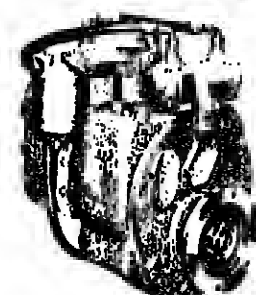




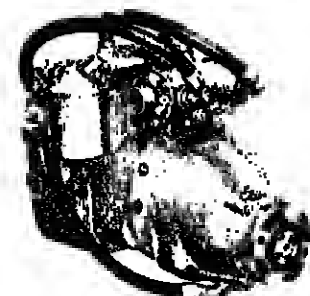
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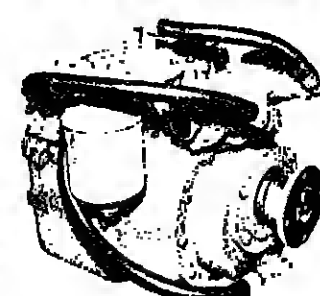
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THE STYLES may be different but the owners of these new boats have one thing in common. They are both engaged in fisheries where the big rewards go to those willing to try new ideas, new species, and to make sure they have the best in vessels and gear.

Built in Norway by Karmoy Mek. Verksted for the highly successful Tait family of Fraserburgh, the new purse seiner *Tails* cost well over £1 million. The 146 ft (44.5 metre) ship is commanded by Skipper Andrew Tait.

Her fishing areas will include the mackerel grounds off south-west England.

Powered by a Wichmann engine of 1200 hp, the *Tails* has a carrying capacity of 470 tons.

Her gear handling machinery includes Karmoy winches and Triplex power block. Her six seawater tanks are cooled by a Kvicmer refrigeration system.

The 108 ft (32.9 metre) combination crab boat and salmon tender *Early Dawn* was built by the Marine Construction & Design Company (Muren) of Seattle. Her owners include the Mazich family of Seattle.

Sam Mazich will command and start by fishing for tanner crab.

When not fishing for tanner or king crab, the *Early Dawn* will work as a salmon tender.

She is equipped with two auxiliary picking booms with Marco winches for catch handling, a fish-loading elevator well, insulated fish hold overheads and a chilled seawater circulation system.

Her three fish holds total 7,100 cu ft and can carry 170,000 lb of live crabs.

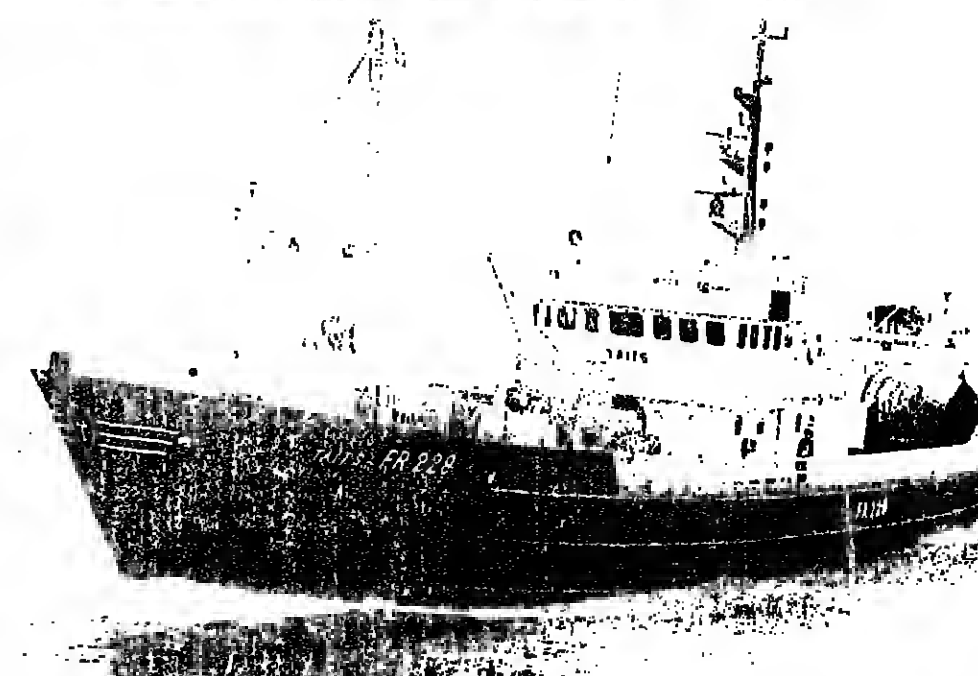
The main engine is a turbo-charged and after-cooled Caterpillar D398H developing 850 hp and turning a Coolidge three-blade propeller through a Caterpillar 7251 gearbox.

The *Early Dawn* also has two Caterpillar D3306 auxiliary engines for driving 135 kW generators.

Deck and fishing machinery includes Marco KingHauler crab pot hauler, KingCoiler, pot dumping rack and an eight-ton Rowe crane.

There has been a big growth in demand for modern, high-capacity fishing vessels from United States owners. This follows the extension of US limits out to 200 miles.

Marco is building boats similar to *Early Dawn* at the rate of one every six weeks. The company has also developed a slightly smaller vessel and is to build a new class considerably larger in its busy Seattle yard.



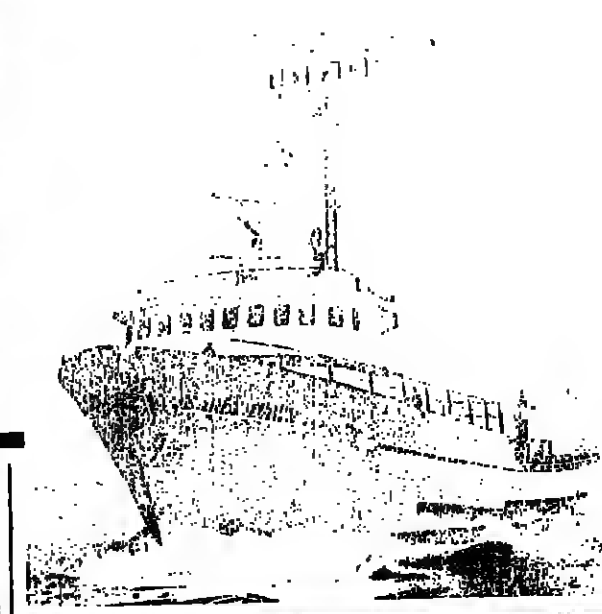
Success often runs in families, and the Tait family of Fraserburgh are no exception. Together they operate three of the highest-earning purse seiners based at a Scottish port.

The latest vessel to join the group is the 146 ft *Tails* shown here.

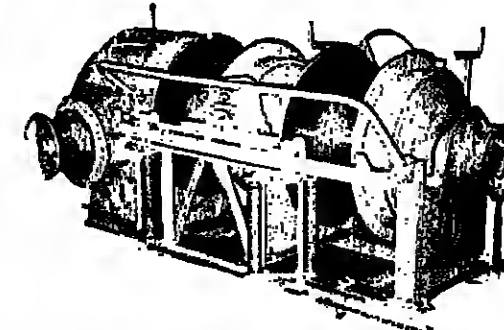
She was built for well over £1m for skipper Andrew Tait, pictured below. His brothers Willie and Robert work the family's other two vessels, and father Andrew was equally successful in his time.

## Fishing families who get the best

The Mazich family of Seattle have built up the same reputation on the US west coast that the Tait brothers have in Scotland. Their latest acquisition is the 100 ft combination crabber and salmon tender *Early Dawn*. The sleek-looking vessel was built by Marco of Seattle. She is powered by an 850 hp Caterpillar diesel and can carry up to 170,000 lb of crabs.



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## Japan quota agreement

THE conditions under which Japanese vessels will be allowed to fish within Canada's 200-mile limit has been finalised by delegates of both governments. The text, drawn up in Ottawa in early April, has still to be formally approved.

Like ships from other fishing nations, Japanese vessels will find their scope and range severely restricted.

The agreement, it is reported, provides for licences and the number, type and capacity of ships. It also stipulates the species and

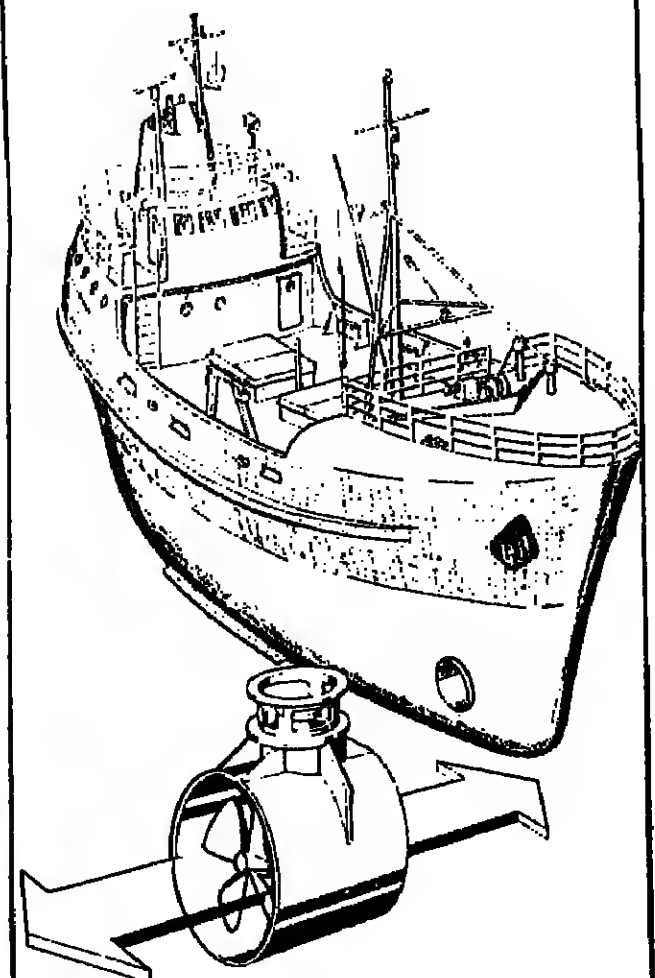
quantities that may be caught and the ways in which Japan will comply with Canadian conservation measures.

### Special interest

It is the fifth agreement since the extension of Canadian limits in 1977 to refer to the special interest of Canada in resources in the area beyond and immediately adjacent to the Canadian EEZ.

Cuba, Romania, East Germany and Bulgaria have also recognised this extra limit.

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The organisers of the annual Fish Expo in the United States broke new ground in April with their first Latin American exhibition. It was staged over four days in the Roberto Clemente Coliseum in San Juan, Puerto Rico. **KARIN E. KNUDSEN, who was there, describes some of the highlights of Expo Pesca Pan Americana . . .**

# FIRST EXPO PESCA WAS SMALL BUT BUSY

THE FOUR-DAY showing of Expo Pesca Americana drew 1,213 visitors to see the displays of 102 exhibitors. The United States led this total with 65 exhibitors, Canada had 17,

Puerto Rico six, Mexico three, Sweden and Panama two each, and there was an exhibitor from each of Poland, Italy, Britain, Nicaragua and Norway.

"In small-scale terms, Expo Pesca was a success," said David Jackson, president of the organising company, National Fishermen's Expositions.

He felt that the show had fulfilled its purpose of bringing manufacturers, buyers, fishermen, government officials and people involved in commercial fisheries together in a common market place for Pan American countries: Mexico, Central and South America and the neighbouring islands.

"It proved that there is a vast market in Latin America," he added. "That good business can be done between American, European and Far East suppliers, Latin American governments and, amazingly enough, individual fishermen."

## Attendance

Daily attendance at the show was small compared to the Boston and Seattle Expos averaging 300 per day; but those attending were there on business.

Serious about the fishing industry and interested in gathering information, meeting representatives, various fishing industry in the visitors came from countries. "All the people should be here, are being remarked a Desco Ma representative."

Visitors to Expo Pesca included company president and vice presidents, mechanics, fishermen, directors of government or military organisations, sales representatives, government officials, students, professional administrators, members of fishermen's co-operatives, and project directors of developing fisheries. Col. Fernando Flores, a Spanish-speaking fishing magazine based in Los Angeles, said: "It's a different kind of show from Boston or Seattle. In Latin America, heads of fleets come to buy a fleet of 20 or more. In the USA, the individual fishermen come to the show to buy."

## Contacts

The exhibitors at Expo Pesca were there to make contacts with the Pan American market, according to Flores, and from his survey of the show, it was a successful venture this way.

"The show was publicised mostly by direct contact," said Bill Bowler of National Fishermen's Expositions. "In those few Spanish-language fishing publications that have Latin American circulation, we did advertise and give them press releases, but Latin America does not have the kind of commercial fishing press that the United States does. Faced with this problem, we went a couple of routes: First, of all, we encouraged the exhibitors to distribute as much information to their customers about the show as possible."

## Visitors to Puerto Rico show came for business

Secondly, we went to the US Department of Commerce who contacted embassies and trade missions in Latin America and identified by name the people in the commercial fishing industry in each of the individual countries down there.

## Top level

"These are the people we were after anyway — the top level people. Expo Pesca was not aimed at the working fisherman. The market at Expo Pesca is totally unlike the markets in North America or Europe, because there are many undeveloped fisheries that have to be built from the ground up; the show has to be built from the ground up as well."

Puerto Rico's fisheries are still in the stage of being developed. Jack Buck, a former Florida commercial fisherman, now lives at Luquillo Beach and is working to create a programme for Puerto Rican fishermen, founded by a private non-profit foundation.

"In Puerto Rico, trap fishing is very popular," he said. "They use 18-20ft. boats and go out only two or three hours a day. If the weather is bad, they don't go out at all."

"The government of Puerto Rico, through boat-buying programmes and development agencies, is trying to encourage the fishermen to go out longer, for two or three days."

## Too technical

The electronics displays at Expo Pesca were of passing interest only. "Electronics are too technical, expensive, and difficult to service here," explained Jack Buck. "The local fishermen are much more interested in the more basic fishing gear that they are

familiar with — traps, blocks, winches, nets."

With well over half the visitors from Puerto Rico, it is not surprising that Fathoms Plus Marine Implementation of San Diego, and Coatings Engineering of Sudbury, Massachusetts, both showing non-wood fishing traps, found Expo Pesca to be very successful for them. Fathoms Plus sold 300 of their polyethylene traps in one day, and had to limit customers to one trap, as many wanted to buy the whole lot.

John Cadario of JC Boatworks has a prospect of seeing half-a-dozen boats to a firm in Martinique, as a result of attending the show. Silu Boat Inc.'s 22ft. "Pocket

Seahawk" attracted a large amount of interest from the local fishermen.

Another exhibitor, North Star Ice Equipment of Seattle given out at Expo Pesca reported very good results at the show, finding at least 10 contacts a day with presidents of companies from Central and South America.

## Best show

Trion Water Systems of San Diego, Calif., reported: "It's the best show we have been at for two years."

Asked if he would consider holding the next Expo Pesca in Miami Beach, Florida, Dave Jackson said: "It might be easier in Miami, yes, but then we are asking the market to

meet us more than halfway, and our idea is to meet them at least halfway."

"Latin Americans need a show that is designed for their benefit. Puerto Rico was chosen as a Spanish-American community so that visitors from Latin America would feel comfortable there."

"There will be another Latin American Fish Expo, where and when have not been decided. Probably in two years, since we need to take some time to study our results, and alternative locations."

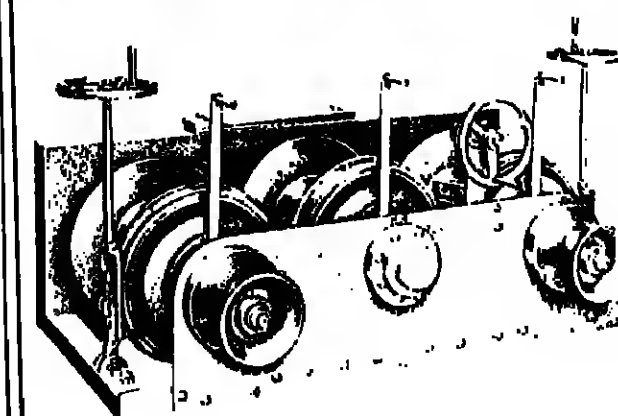
"We have got to do more work on anticipating our audience, and decide what specifically is needed in the particular locale for the show in the way of education, and then gear our seminars to that. We have got to have some more important forums such as international fishing policies, developing trends, assistance programmes, for the foreign visitors who represent large fishing interests."



Part of the first Expo Pesca Americana in the Roberto Clemente Coliseum in San Juan, Puerto Rico. Attendance was small, but most visitors came for business.



Two engine stands at Expo Pesca Americana.



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16



# CHILE EXPORTS BOOM

FOR CHILEAN seafood exports, 1977 was a record year. Sales worth US\$180 million were double the previous high of \$89.7m. the year before. Total volume was just under 300,000 tons.

Biggest gains were reported for fish meal exports. Sales amounted to \$109.5m., up considerably from the \$61.1m. of 1976. And there were encouraging rises in several other products too.

Japan and the United States were the main outlets, but demand was strong in most markets. Canned products continued their upward trend in Latin American markets; and there were some sizeable orders from Europe, France in particular.

During the year, important new markets for frozen fillets were opened in Iran and Saudi Arabia.

The 1978 outlook is promising, reports *FNI's* correspondent in Chile. Import duties on gear and other equipment have been lowered, and this is encouraging investment in freezing and processing plant.

A number of new companies have been formed to turn out frozen products, while several meal producers are adding canneries and freezing plants to their factories.

Supplies are the main problem. There are fears that competition among the growing number of seafood producers may lead to overfishing in some areas.

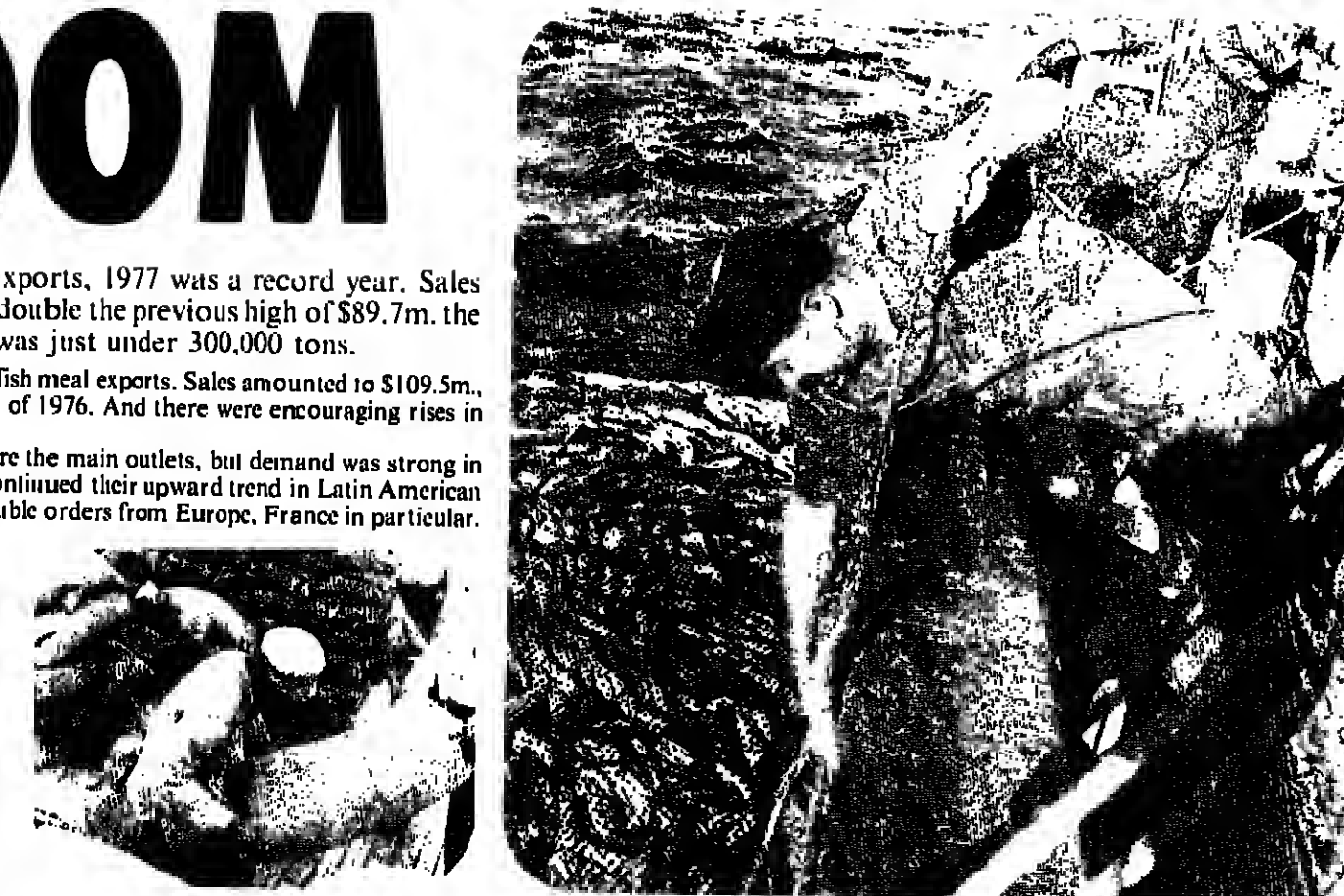
Already there are unofficial reports of decreased landings of important species such as hake and shrimp.

Overexploitation of shellfish banks has also been reported.

Chile's artisanal fleet has been taking on a more prominent role as a supplier of primary products for export. It now delivers 85 per cent of shellfish, all the raw material for seaweed processing and 30 per cent of fresh fish.

But the small boats have been getting only \$45 to \$66 a ton for catches. To keep pace with growing demand, better prices will be necessary to finance long overdue improvements and modernisation of the fleet.

A breakdown of 1977 exports



## Record demand should help the small boat fishermen

shows that shellfish molluscs and crustaceans improved considerably over 1976. Value rose from \$26.9m. to \$46m., and the volume totalled 18,225 tons.

Sales of frozen locos (Chilean abalone) exceeded 5,600 tons and earned \$13 million, and langostinos totalled 4,266 tons worth a record \$19.

Production of meal in 1977 amounted to 230,461 tons, and 18,037 tons of oil was produced.

Sales of canned seafoods amounted to 4,825 tons and the value rose from

\$2.8m. to \$9.5m. Japan, the USA, France and Germany were the main buyers.

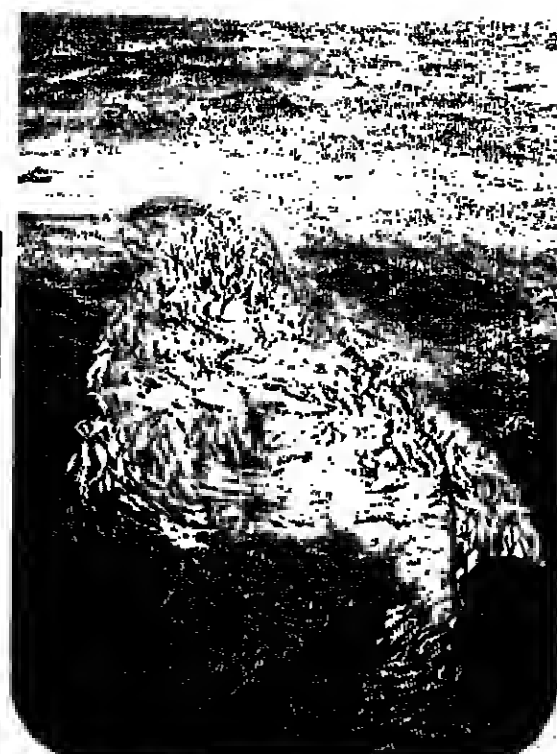
Growth in Chile's canning industry has long been hampered by inadequate processing facilities, sub-standard packaging and limited markets.

But over the past four or five years, there has been a steady improvement.

Chilean canners are optimistic about sales in 1978 and expect a strong demand to continue for scallops, king crab, langostinos and king crab pate.

Widening markets and record exports could prove a boon to the small-boat fishermen working along the coast of Chile.

The left-hand picture shows workers stacking meal at a plant south of Valparaiso. Production in Chile in 1977 exceeded 230,000 tons.



A heul of hake trawled up by a coastal boat. Supplies could cause problems as the best grounds are depleted.

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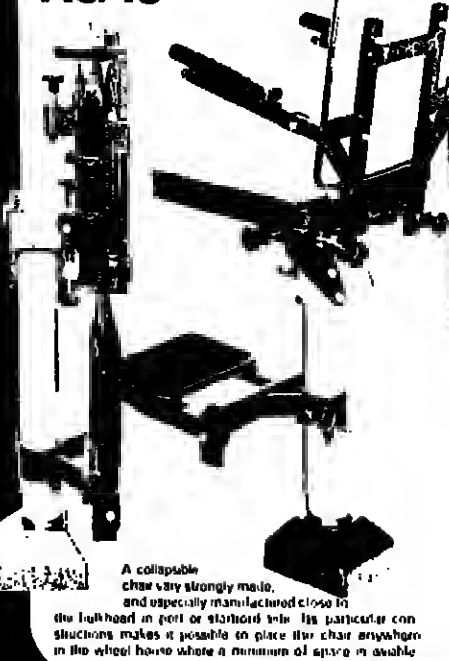
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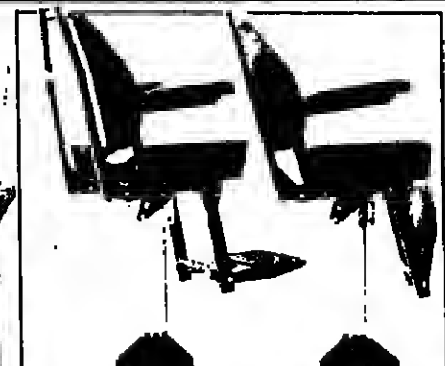
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For fuller particulars write to the Chief Economist, White Fish Authority, Sea Fisheries House, 10 Young Street, Edinburgh EH2 4JQ. (Tel. 031-225-2515. Telex 727225).



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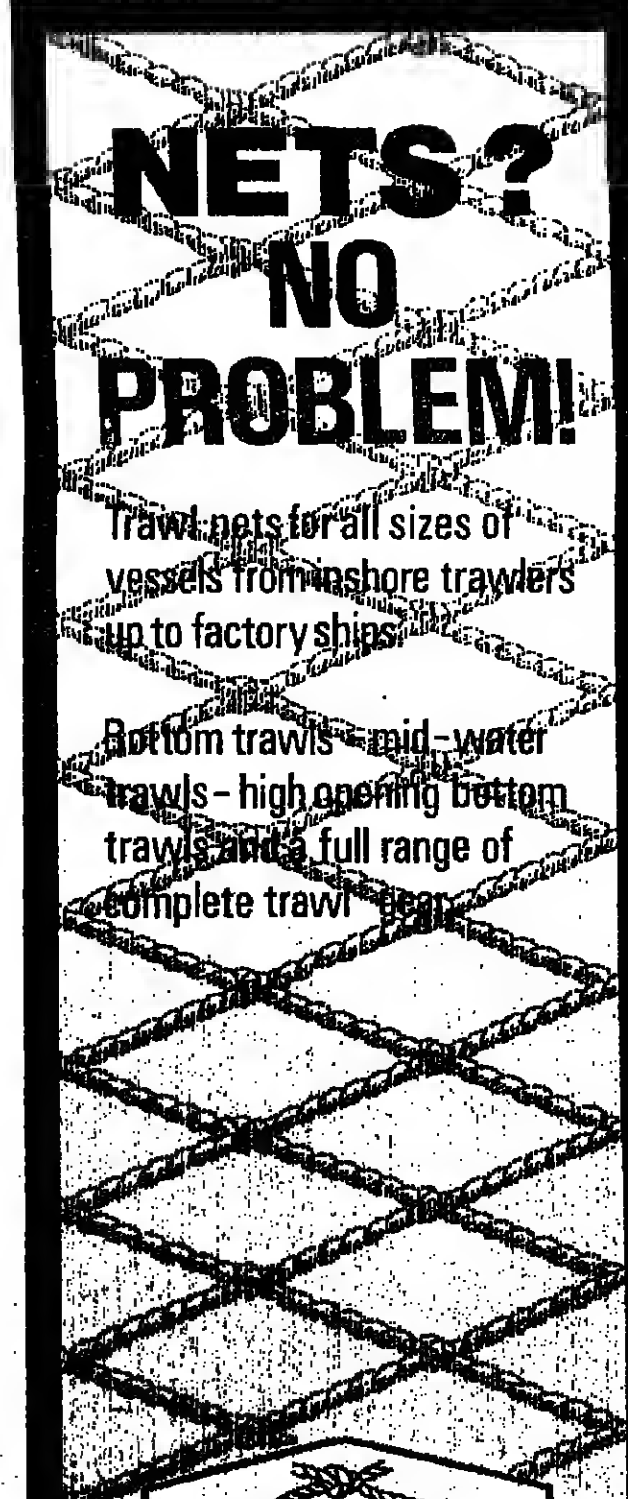
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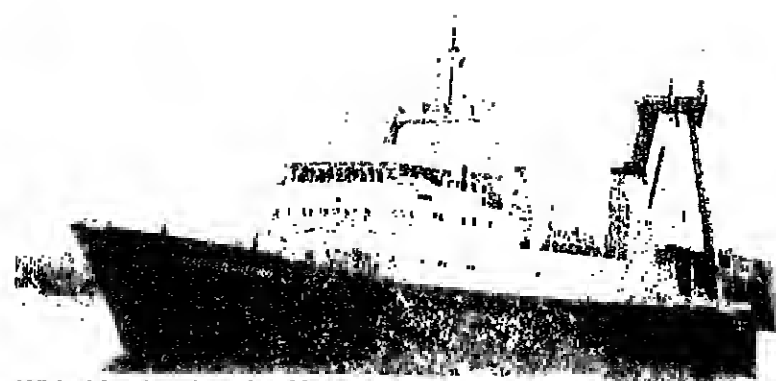
## Grants for yards in two ports

THE Argentine government is to open a public tender for the granting of concessions "to use areas in the public domain" at the Atlantic coast ports of Quequen and Mar del Plata.

A law has been approved allowing the concessions which will be "in accord with Argentina's policy of encouraging the development of the fishing industry."

The grants will vary from 40 to 60 years. Their purpose is the construction of repair shops and shipyards.

# BRITAIN URGED TO DEVELOP A FALKLAND FISH BASE



With ships like "Walther Harwig," West Germany has taken a leading part in research into potential fisheries in the South Atlantic. The "Walther Harwig" has made surveys of several stocks. Her latest project is a second big expedition in the Southern Ocean.

IF THE British government and trawling industry do not move smartly to make use of the Falkland Islands as a fishing base for operations in the south-west Atlantic, other countries would like a chance.

This is apparent from reports of

application to Britain for fishing rights inside Falkland Island limits. Such rights would give vessels access to some substantial stocks including hake and prawns.

Working hard to get the British industry to use these resources is the South Atlantic Fisheries Committee. The SAFC is a group of people involved in

fishing and consumer organisations who see the waters around the Falkland Islands as a source of fish wealth, and want them exploited.

Last month James Johnson, Labour MP for a Hull constituency, chairman of the All-party Parliamentary Fisheries Committee and president of the SAFC, delivered a memorandum to Fisheries Minister John Silkin proposing a 12-month fisheries survey of the area. This would cost about £1.5 million and could be managed by the White Fish Authority.

Using the comprehensive information given in the Falkland Islands Survey of a few years ago, the memorandum notes that huge resources of fish have been identified around British territories in the South Atlantic.

### Meal imports

Two million tons of blue whiting (poutassou) alone might be caught off the Falkland Islands every year. It adds that fish meal imports by the UK last year were 213,577 tons costing £64.8 million. This, suggests the SAFC, could be supplied from British waters.

Part of the memorandum

was prepared by Prof. McDermid of the WFA. He said that the proposed survey was designed to cover a 6-year's fishing, to take account of seasonal fluctuations and confirm the commercial viability of a British industry in the area.

"Fish fillets from south-west waters are likely to be acceptable, both in price and taste, to the British consumer," he said.

### Research

The memorandum points out that vessels from Russia and other East European countries and Japan are already fishing extensively in southern waters. And "the West Germans are spending £2 million on fisheries research."

Poland is reported to be seeking tenders for transport of fish caught in South Georgia, one of the whaling bases.

"We are also aware," said the SAFC, "of the strong demand from governments, Eastern European countries for the use of facilities in the Falkland Islands and South Georgia."

## RUSSIANS INTO SEA RANCHING

THE RUSSIANS, according to a report by L. Vail of the Baltic Fisheries Research Institute, are already well into sea ranching. Some 12 million fingerlings, he says, are released from Soviet fish farms every year. And foreign fishermen are thought to be taking almost half of the harvest of these Russian-bred fish.

Each year the Baltic Sea yields a catch of 800,000 to 900,000 tons to the littoral countries. Although only a small share of the global total, it is important for these seven states who have well-developed fishery industries.

Unfortunately, the Baltic appears to be more vulnerable to pollution than most other seas. This, explains Vail, is because of the relatively closed nature of the sea with the water changing only once in 20 years.

### Gdansk Convention

In an effort to deal jointly with this and other problems, the Baltic states signed the Gdansk Convention in 1973 and now have their own international management commission.

According to Vail, the Soviet Union itself has a Baltic Fishing Council which includes the heads of most of the fishing co-operatives working in the Baltic, research workers, and heads of protection agencies.

"The emphasis," he adds, "has now switched to improving the methods by which fish are produced rather than in continually raising the amount caught."

## Canada and U.S. hold their lines

FISHING by Canada and the United States in areas affected by the 200-mile economic zones will be governed by an interim agreement during 1978. This was recommended at the end of March in a joint report by the special negotiators, and has been accepted by the two governments.

The negotiators — Marcel Cadieux for Canada and Lloyd N. Cutler for the USA — have been trying to reach a comprehensive agreement covering disputed maritime boundaries and related marine resource issues. They have been meeting regularly since October 1977 and they say that significant progress has been made towards an overall agreement.

But some difficult problems remain to be resolved, and to prevent disruption of fishing should continue under existing reciprocal arrangements. The arrangements would stay in force through 1978, unless superseded by a comprehensive settlement.

The disputed zones include the Georges Bank off Nova Scotia, the Strait of Juan de Fuca between British Columbia and Washington state, the Dixon Entrance between IJC and the Alaskan Panhandle, and the Beaufort Sea between Alaska and the Yukon.

Commenting on the Georges Bank aspect of the negotiations, Nova Scotia's Minister of Fisheries, Dr. Dan Reid, said the provincial government did not like the proposals contained in a package prepared by Canadian negotiator Marcel Cadieux.

"We could not have lived with them," he said. He added that, unless an agreement was reached before 1979, the matter should be referred to the courts.

Nova Scotia fishermen took 35 million dollars worth of scallops from the Georges Bank area in 1977. The area is also rich in other species such as herring.

Canada claims the north-eastern corner of the Bank along a line drawn equidistant from the US and Canadian coastlines. US negotiators want the line to run through the Canadian channel leaving the bank entirely within the US zone.

## FISHERMEN'S YEAR

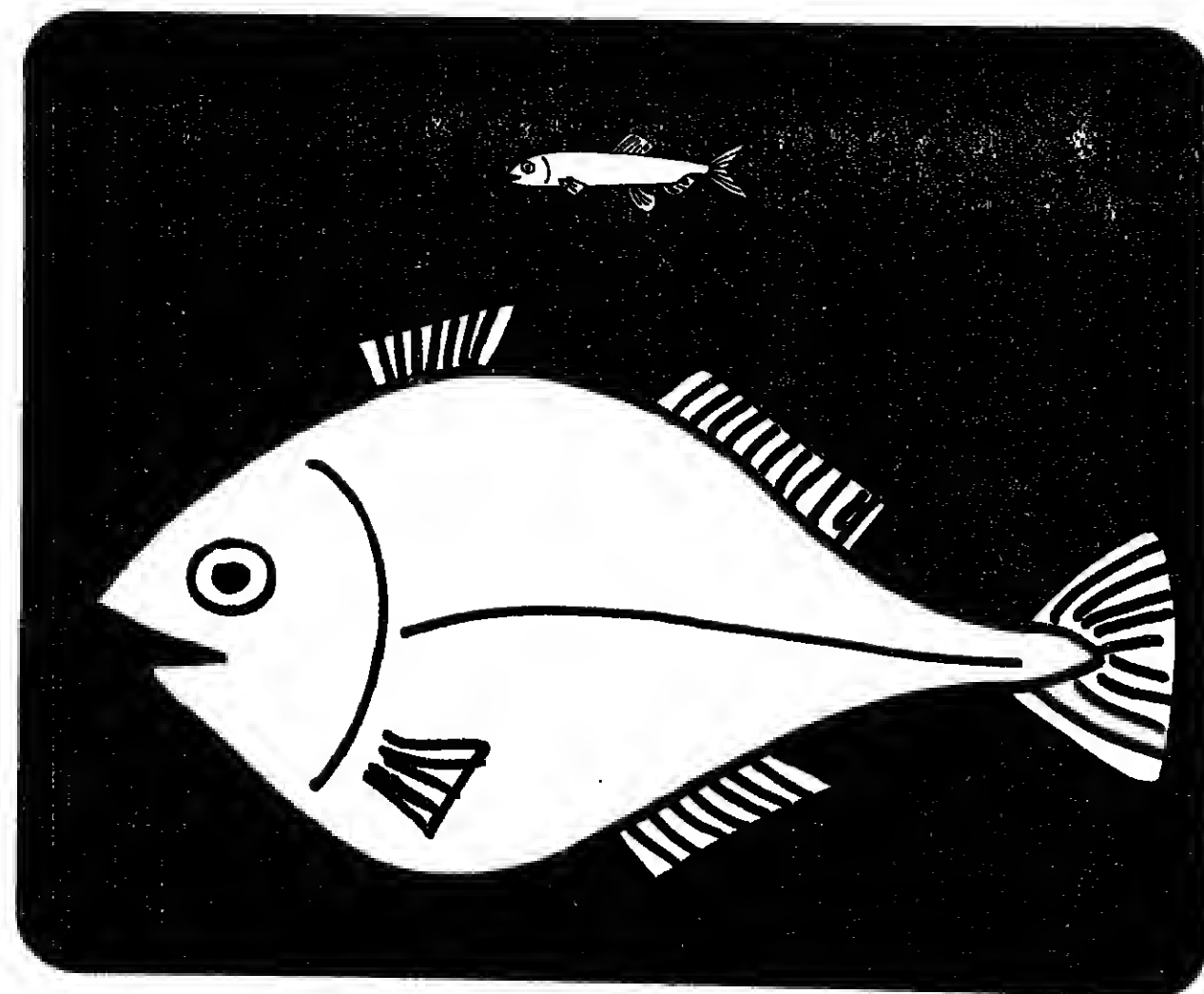
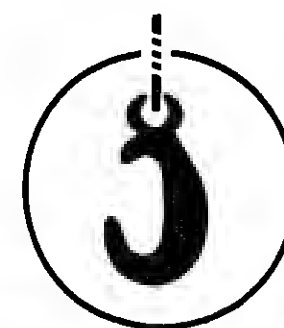
THE YEAR 1981 will mark the centenary of the founding in Britain of the Royal National Mission to Deep Sea Fishermen. It has therefore been decided that it should be called Fishermen's Year to focus the attention in the UK on the vital part which fishermen have always played in the welfare of the nation.

Leading groups in the industry will be observing Fishermen's Year by organising promotional activities.

Among those supporting the concept are the British Fishing Federation, White Fish Authority, Fisheries Organisation Society, National Maritime Museum, Federation of Fishermen's Organisations, Scottish Fishermen's Federation.

During its nearly 100 years, the Mission has been actively concerned with fishermen's social and spiritual welfare. It is inter-denominational and has 20 centres at fishing ports.

## Regardless of size...



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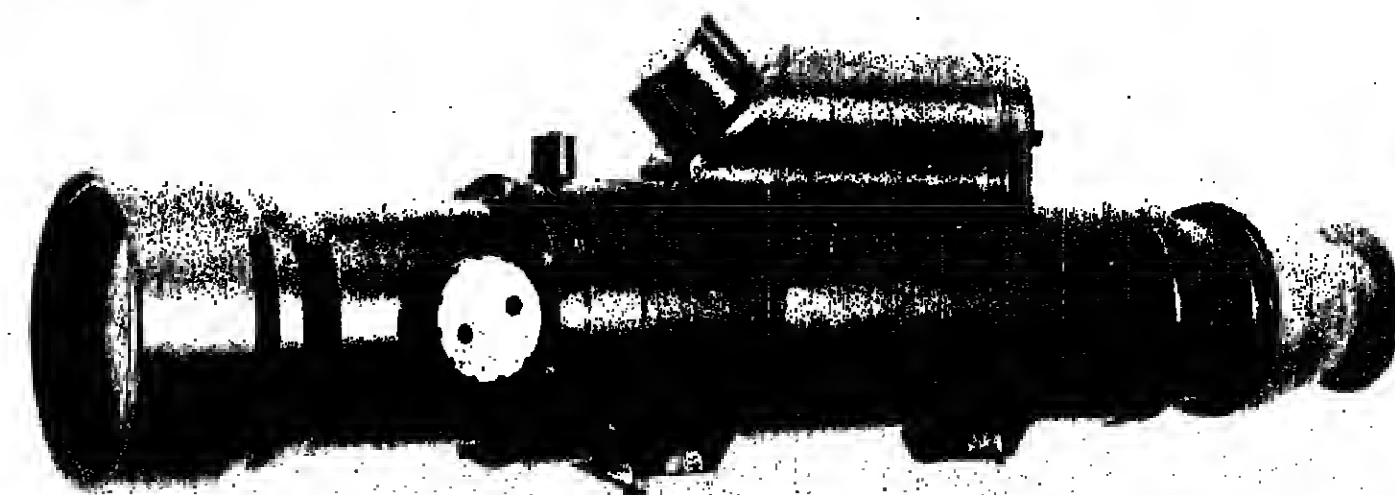
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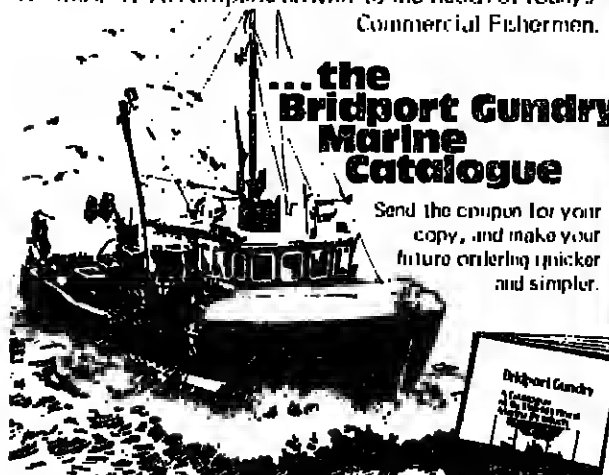


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Fishing grounds exploited by Thailand trawlers.

## Thailand loses to spreading limits



ON THE SURFACE, the fishing industry of Thailand might be seen as an outstanding example of the way the fisheries of a developing country can be guided into the use of modern methods, and to new species and areas.

Fishery scientist Klaus Tiews and gear expert Hermin Engel of West Germany were among the people from developed countries who helped to give impetus to the skills and enterprise of Thai fishermen. The result has been a rapid growth of the country's fisheries, with the emphasis on trawling.

In 1977, Thailand's catch is estimated to have reached 1.6 million metric tons, up more than 100,000 tons over that of 1976. Although most of this goes into the domestic market to maintain one of the world's highest per capita fish consumption, exports are also growing. These rose from 49,871 tons in 1976 to 53,500 tons in 1977. But earnings from them of 2,250 million baht were down 5.3 per cent.

due mainly to a drop in returns from shrimp. And this is only one reason why the industry is looking apprehensively to the years ahead.

The focus of concern is the recent extension of fishing waters to 200 miles by neighbouring countries. Wider limits will severely affect Thailand's wide-ranging fleet. They will reduce her fishing area by about 300,000 square miles and could cut her catch by 30 per cent.

Another problem is arising out of the depletion of fish and other marine resources in the Gulf of Thailand, due mainly to the expansion of Thai fishing over the past seven or eight years.

### Rising catch

This new crisis looms just as Thailand's 64,000 fishermen had begun to get over the setbacks resulting from the 1973/74 increases in oil prices. From nearly 1.55 million tons in 1972 and in 1973, the catch fell by 200,000 tons in 1974 and to just over 1.2 m. tons in 1975. It then began to recover, reaching 1.5 m. tons in 1976. Even more important to the fishermen, its value rose by 45 per cent.

Thailand has the world's seventh largest fishing fleet in numbers of boats. To keep this fleet together, joint ventures are being actively sought.

These ventures could help to provide employment and perhaps keep seas open that 200-mile limits are taking away. Arrests for poaching are now a frequent hazard.

According to Thai Fisheries Association president Pairojama Jayaporn, more than 100 Thai deep-sea vessels which used to work in the Indian Ocean have been forced to tie-up because their crews fear arrest.

Among the countries which are being looked at for potential partners in joint ventures are Bangladesh, Indonesia and the Philippines. All three offer the prospect of rich offshore waters. Like other countries with their options reduced, Thailand is also looking hard at underused species and to new areas. The Department of Fisheries is encouraging the exploitation of the lesser-used method of pelagic fishing. Aquaculture is also seen as a way of increasing supplies of fish. Since 1973 the harvest from freshwater sources has increased from 120,000 tons to over 180,000 tons.

## BRITISH BEACH CAT. PASSES GHANA TEST

THE 36 ft (11 metre) long British designed and built beach-landing catamaran, sent out to Ghana last year, has been putting up an impressive performance.

Provided for test-fishing in Ghana by the British Ministry of Overseas Development, the Catfish 36 catamaran was built to the design of E. W. H. Gifford and Partners by Medway Yacht Company (see FNI, May 1977).

These fishing catamarans had previously been operated in test projects in Nigeria and two worked in UK waters. The firm Catfish Ltd. was formed in market the twin-hull and beach landing concepts.

Asked about results so far, designer E. W. H. Gifford, said that since she went out to Ghana in May, 1977, the Catfish 36 has had "very considerable success."

The boat began working within a week of her arrival in Accra. During the first five months she made 96 departures and landings through surf and fished for nearly 1,000 hours. In that period, she caught 71 tons of fish, with a best day's haul of five tons, and a best month's total of 35 tons.

"All this fish," said Gifford, "was carried ashore through surf normally between two and three metres high. On one occasion the surf was no less than four metres high!"

The Ghanaian crew soon became very familiar with the boat and carried out all operations very competently either by day or night. The disposition of the boat's hull and equipment have proved very well suited to local fishing, either purse seining or bottom trawling. A mid-water trawl is now being made.

Economic indications look good for the boat. It would seem that with local prices of fish — the boat can repay her capital cost in two years, after paying all crew, maintenance, fuel and gear costs. Great local interest has been stimulated as a result.

The next stage could be either setting up the building of the boat locally or an arrangement by which overseas currency is made available for importing further boats.

"One thing is now perfectly clear: It is no longer necessary to provide fishing ports on open surf beaches where the inshore fisheries are within range of vessels of the 12-metre size."

### A smaller boat

Catfish Ltd. has now developed the prototype of a smaller and simpler beach landing catamaran.

Explaining the reason for this, Gifford said he had realised for some time that Catfish 36 was a good deal larger than the actual minimum size of boat needed to cope with surf and carry fishermen out to inshore grounds. Also, the cost of around £25,000 (while more or less the same as an equivalent 36 ft monohull) was beyond the resources of many canoe fishermen seeking to improve on their present boats.

"It therefore seemed logical to produce a very much smaller, cheaper and simpler craft and this we have done with the 24 ft Sandkipper. We have done it as a joint project with Petters with the production of a very simple 6 hp diesel engine."

The prototype boat has been completed and has been running trials. It will be described in the June 1978 issue of FNI. And it will be on show on the Petters stand at the Catch '78 exhibition in Aberdeen, Scotland, from June 14 to June 18.



E. W. H. Gifford (left) with John Fyson, of FAO's Department of Fisheries, look at the small and simple inboard diesel engine made by Petters and installed here in a Filipino canoe.

### Sri Lanka target

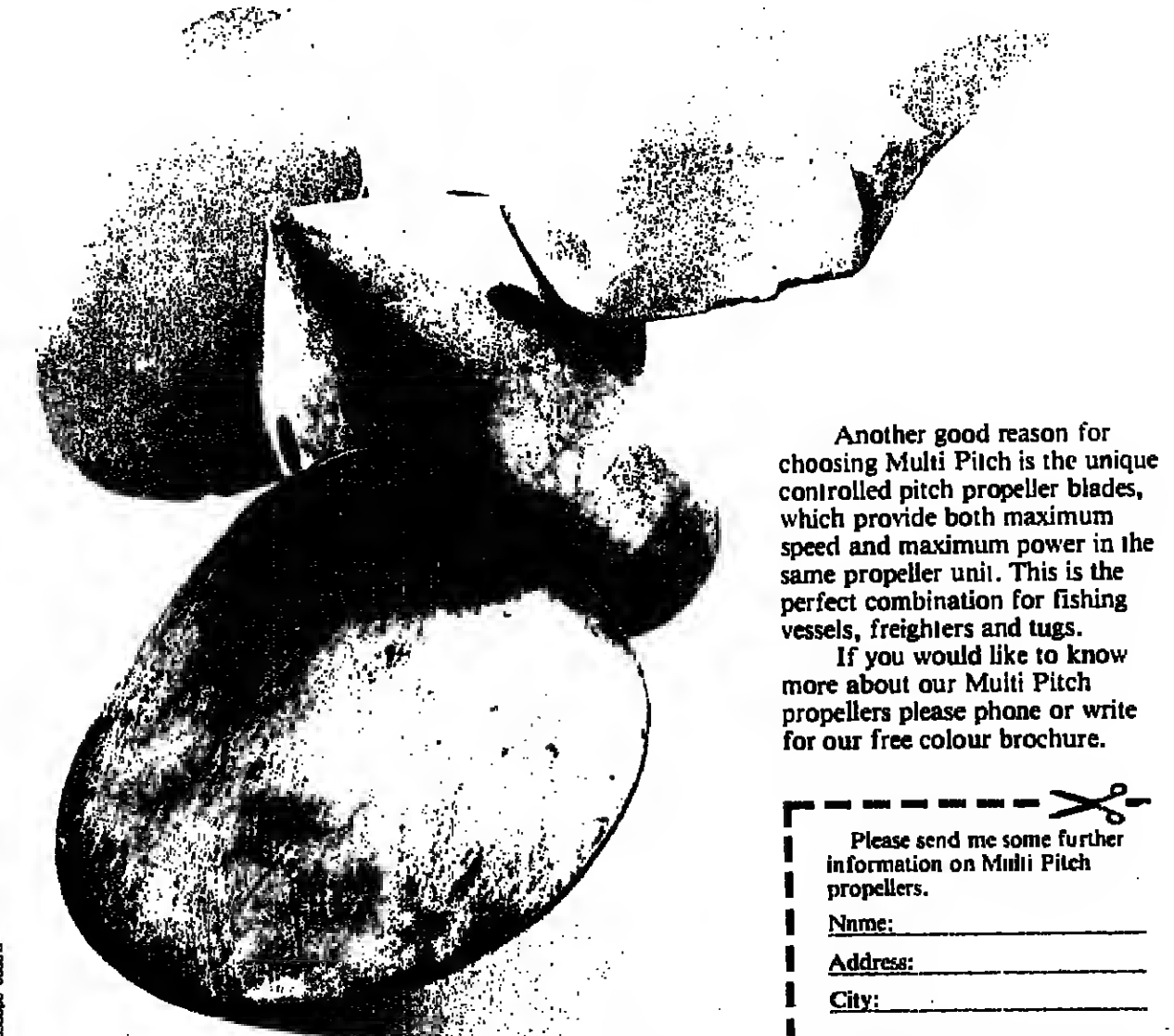
THE MINISTRY of Fisheries in Sri Lanka has set a production target for freshwater fisheries of 25,000 tons for 1978 — up from 7,000 tons in 1977.

Fish fry and fingerlings, which will be issued by hatcheries to stimulate pond farming, include Chinese grass carp, tilapia, gourami and trout.

Most fishermen are familiar with that special shock that shudders through the vessel when the propeller blades crunch into a rock or a big stone lying hidden in the water.

And since this encounter between propeller blade and stone always means that you have to buy a new propeller, such little accidents can become an irritating expense.

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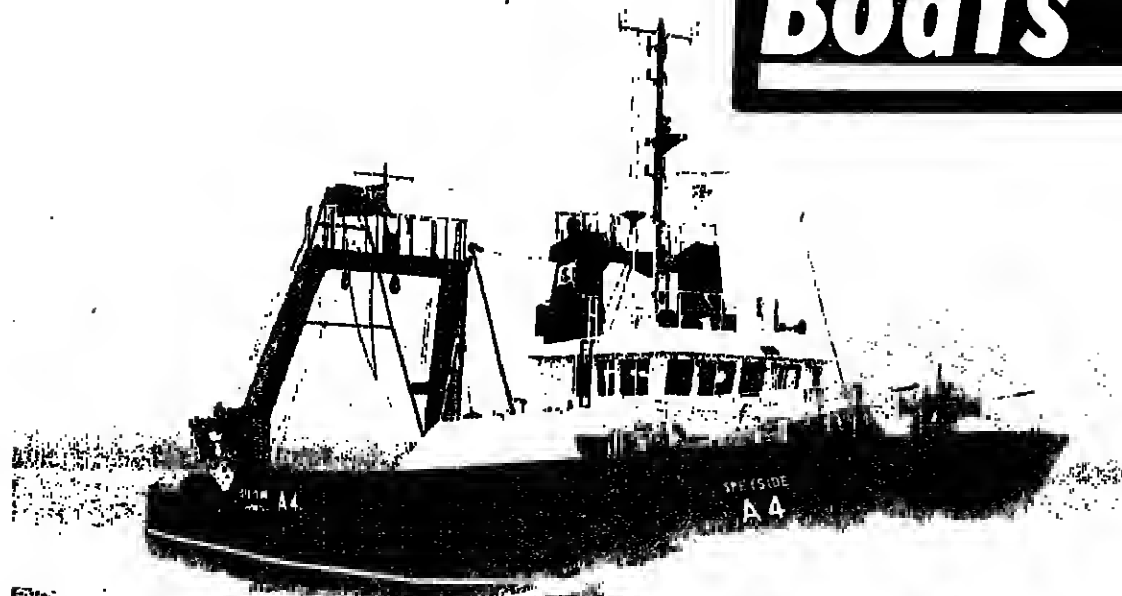
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## Boats beyond reach

### Deposits are too high for many UK skippers



The new 88 ft stern trawler "Speyside" is part-owned by her skipper and other crew members, thanks to the initiative of a Scottish trawling company. As new vessel deposits continue to rise, other British fishermen have not been so lucky.

THE managing director of a Scottish fishing company has joined the chorus of appeal to reduce the deposit that British fishermen have to pay when ordering a new boat.

Speaking at the naming ceremony of the new multi-purpose trawler *Speyside*, Raymond S. Smith of Spinningdale Fishing Company of Aberdeen, said the major firms had their own financing facilities available. But under the present British taxation system it was impossible for a skipper to amass the £200,000 deposit for a vessel like the *Speyside*.

This boat is owned by Spinningdale in association with Skipper Peter Simpson of Buckle, his son James, and others.

The arrangement is one way around the problem. According to Smith, Spinningdale believes that the only way to go in the future is to participate in vessel ownership with skippers, mates, engineers, and other crew members who would hold substantial shareholdings in their multi-purpose vessels.

A new boat approved by the White Fish Authority or Herring Industry Board gets a 25 per cent. building grant, and loan facilities are provided to coastal fishermen. But the owner has to find a deposit of 25 per cent., which would be around £200,000 for a modern, high performance vessel.

#### Impossible

"Clearly, it is impossible for young people to look at vessels at that price," said Smith, "so I appeal to both local and central government to look closely at ways of reducing this crippling deposit to say ten per cent."

He suggested that, if necessary, the government through its agencies, could take a shareholding in the vessel with an option for the working partners to buy this up from their share of earnings.

This arrangement would also help to counter the growing competitiveness of some yards on the European Continent which were offering terms at a fixed interest rate and less than half the deposit required by the WFA and HIB.

The 86 ft (26.2 metre) long *Speyside* is the first of three sister vessels from the Richards yard in Lowestoft, England. The next vessel, also for Scottish owners, is due for delivery in June.

#### Nine crew

One of the features of the boat is her wide 25.5 ft beam giving ample space on deck and below. She has accommodation for a crew of nine.

Gear handling machinery includes Norwiche low-pressure hydraulic split-trawl winches and a net drum. She is the first vessel in the UK to have the Norwiche Automatic Trawl Control system.

Her engine room is forward and the fishroom is amidships. The main engine is a Mirreco Blackstone, 900 hp diesel turning a Usteln controllable pitch propeller.

## Norway patrol ship build-up

NORWAY is in build up her Coast Guard service with four ships of 200 tons, six helicopters and two Orion surveillance aircraft. And three former fishery patrol vessels now in the Coast Guard — the *Nornen*, *Fram* and *Heimdøl* — are to be modernised.

The 1978-81 programme approved by the Storting last month, will cost an estimated £140 million.

Hakonstvern in Bergen will be the Coast Guard base in the southern district. Sortland was favoured over Ramsund by a margin of only two votes in the northern district base.

#### Navy choice

Ramsund was the choice of the Defence Department (unofficially) and the Navy and the opposition parties because it is already established as a naval base in conjunction with Navy headquarters at nearby Harstad. It is also on the mainland while Sortland is out on the Vesteraalen.

There is a feeling therefore that, by forcing through the choice of Sortland, the Norwegian government is giving priority to its defence and economic protection interests.

Meanwhile, the intensive policy of the 200 mile limit continues. The "cutch" of 1978 (or the Coast Guard was the West Coast trawler *Heron* on a routine check on the bank by the police boat *Hydrograf*.

Her skipper, and found "gull" cover net over the trawl. He was the kroner and the two tons of gear were con-

## CHUM SALMON PROJECT

ONE and a half million fry of the North Pacific chum salmon have been released into the Rio Simpson in the Aisen region of Chile. This marks the penultimate stage of a three-phase Japanese-Chilean project to introduce salmon into the South Pacific (See *FNI*, January 1978).

The event, staged on February 24, was attended by the Japanese ambassador to Chile and the Chilean under-secretary of fisheries.

It took place at the hatchery in Coihaique set up in 1974 to support a project which is planned to yield salmon worth about eight million dollars a year after 1983 and more than \$20 m. after 1993.

The fry were hatched from eggs flown from Hokkaido.

According to speakers at the release, Japan and Chile have each invested the equivalent of about \$300,000 in the project so far.

#### Steady supply

The short-term aim is to provide a steady supply of eggs for the Coihaique hatchery by capturing salmon which return to spawn in the Rio Simpson.

Experimental release of fry is

now's the time to watch and wait

from *FNI's* correspondent in Chile

expected to end soon. To date, 9.5 million have been released into the Rio Simpson and El Salto.

Although little is known yet about how the introduced salmon will behave in the South Pacific, experts associated with the project were looking to a southern autumn return this year of about one per cent.

Between 1983 and 1988, they estimate that the return rate should go up to 1.5 per cent. By then this would amount to 1.2 million fish with 200,000 providing eggs. From these spawning salmon, the hatchery would raise 160 million fry to return to the river and the sea.

Despite a dearth of returning salmon so far, there is a mood of

## Japanese allowed to fish

THE Chilean government has authorised the Japanese company Nippon Suisan Kaisha to fish in Chilean waters with the trawler *Kirishima Maru*. According to a decree published in the *Diario Oficial*, the company is permitted to catch, freeze and slure headless gutted fish and to process meal using the wastes.

## Consumers go for krill sticks

THE CHILEANS have also been carrying out development work on Antarctic krill. They are taking advantage of their country's close proximity to this potentially rich marine food resource.

Last month, the Fisheries Promotion Institute (IFOP), a government agency, said it had concluded its part in this work. It has now been left to private industry to carry on with commercial processes and marketing.

According to Arturo Reid, acting director of IFOP, his agency demonstrated that krill can be an excellent protein food which should sell in Chile and outside.

The IFOP distributed some 20 tons of frozen krill in Santiago supermarkets over a period of six months.

#### Sticks popular

In another use, krill was hnttor dipped and formed into fish sticks by the state-owned Pesquera Chiloe factory in San Antonio.

Krill sticks have proved quite popular in Chile despite their relatively high retail price of about \$1.50 for a 500-gram package.

IFOP is now busy introducing another new product called "Fish in a Bag" as a joint venture with the Sea Food company.

The product offers the consumer an easy-to-prepare meal consisting of 500 grams of frozen portioned fish fillets in a special plastic bag. It can feed six people, and sells for 50 pesos (\$1.60).

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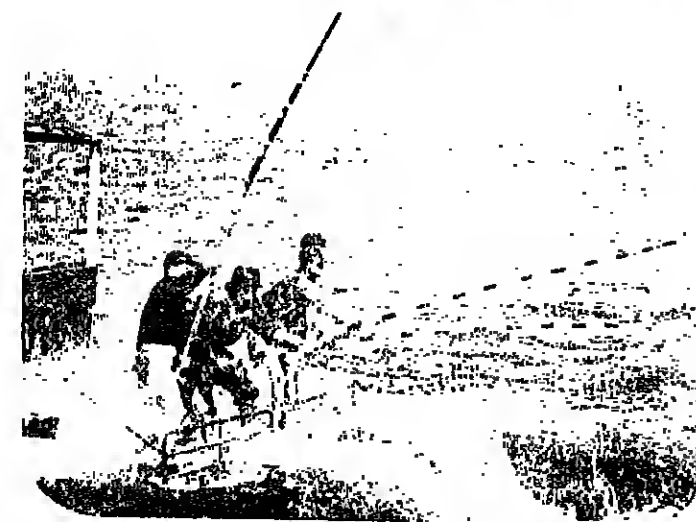
## Australians ready to claim world's largest fishing area

ON APRIL 13, the Australian government introduced legislation to extend the country's fishing out to a 200-mile EEZ. This will create what will be the largest national fishing area in the world and could mark the start of Australia's move upwards to a high place among fishing nations.

The federal House of Representatives was told by Primary Industry Minister Ian Sinclair that foreign fishermen would be permitted to work inside the zone, on stocks which Australian fishermen could not adequately develop. But he added that the legislation would give "an extensive and effective control over any foreign fishing operation within the Australian zone."

Japanese, Russian and Taiwanese ships have been working to within 12 miles of Australia's coastline. By mid-April a Taiwanese and three Japanese trawlers had been arrested by Australian Navy patrol ships in 1978 for fishing inside the 12 miles.

The wider limit, expected to be finally approved by the middle of the year, will



### PROTECTED:

#### Pole fishing for bluefin tuna

put a severe strain on the country's fishery patrol fleet.

One area which will be closed immediately to foreign trawlers is the prawn-rich Gulf of Carpentaria.

As a run-up to wider limits, a working group made up of federal and state fishery administrators, scientists, fishermen and processors has prepared a guideline for the management of the EEZ.

Submitted in the Australian Fishing Industry Council, the working group report divides resources in the EEZ into three categories:

1. Those already developed.
2. Those presently being fished by Australians on a commercial scale.
3. Those not presently being exploited by Australians.

#### Closed

Fisheries in the first category should be completely closed to outsiders. They include catching of fish such as mullet and whiting inshore, juvenile southern bluefin tuna, rock lobsters, prawns, trawl and Danish seine fisheries on the east coast, Australian "salmon" (ocean perch), scallops and abalone, sharks in the south-east and reef fish along the Great Barrier Reef.

There might be some scope for foreign participation in the second category. This includes deepwater trawling in the south-east, trawling in the Great Australian Bight, pelagic fishing for skipjack tuna, jack mackerel, snook,

pilchards, anchovy and Spanish mackerel.

Foreign ships would have an even better chance of moving into or remaining in third category fisheries possibly in joint ventures with Australian companies or under licence.

In the third category are trawling in the north and north-west, adult southern bluefin tuna, lantern and lightfish, and squid and shark in northern waters.

#### Potential

Looking at the potential for development, the report notes that undeveloped demersal resources off southern Australia might yield about 20,000 metric tons a year.

The north-west continental shelf around the tip of Cape York is seen as an interesting area. Taiwanese catches there indicate that the yield might be as high as 70,000 tons a year.

Then there is an unknown but probably moderate demersal resource off the east coast of Queensland.

Japanese longliners have been taking about 10,000 tons a year of southern bluefin tuna inside 200 miles off eastern, southern and western Australia. Another 10,000 tons a year is being caught by Australian pole and line boats.

### PROTECTED: Trawling for prawns in the Gulf of Carpentaria

presents the best opportunity for expanding the tuna fishery. The present Australian catch is only about 2,000 tons a year. Annual landings of 25,000 to 50,000 tons a year are seen as quite possible.

The potential catch of northern bluefin is put at only 5,000 tons. And the possibility of developing a yellowfin tuna fishery is not promising.

#### Sharks

Prospects for a shark fishery along the north-west continental shelf, the Gulf of Carpentaria and off north-east Queensland appear to be good. It seems, however, that such a fishery would not attract Australians at present and could be considered by a joint Australian-foreign venture or by foreign fishermen.

A previous attempt to exploit jack mackerel resources off south-east Australia failed, but the area has a potential yield of 50,000 tons a year. This fishery may require some level of foreign technical knowledge in catching and processing the fish for canning and the manufacture of fish meal.

Pilchards and anchovies are unlikely ever to be of great significance to Australia.

Australia's most promising resource is lightfish and lantern fish, which are abundant in the south-east, where they are caught in mid-water trawls. Their use will probably be confined to fish meal and fish sludge manufacture.

The report says that, if the policy of the federal and state governments was to maximise Australian participation in the 200-mile zone, they will need to provide improved information about the fishery resources, assistance with market research and product development, access to cheaper vessels and financial incentives.

Cheaper vessels would give positive incentives for Australians to undertake developmental work in offshore fisheries. Existing policy should be

modified to allow importation of large second-hand fishing vessels that would be cheaper and more economical to operate than comparable vessels built in Australia under the present bounty scheme.

High-risk capital should be provided to the Australian fishing industry to develop offshore fisheries, the report stresses.

Foreign fishing activity in the Australian 200-mile zone will need to be tightly controlled. Ways in which this can be done are by:

1. Licensing foreign fishing vessels.
2. Allowing foreign feasibility fishing.
3. Allowing Australian-foreign joint venture feasibility fishing.
4. Joint venture arrangements.

The simplest form of licensing foreign fishing was to permit operations in the 200-mile zone subject only to payment of a fee and/or royalty and providing details of catches. However, this approach would not generate secondary benefits associated with servicing foreign fishing vessels in Australia or handling their catches.

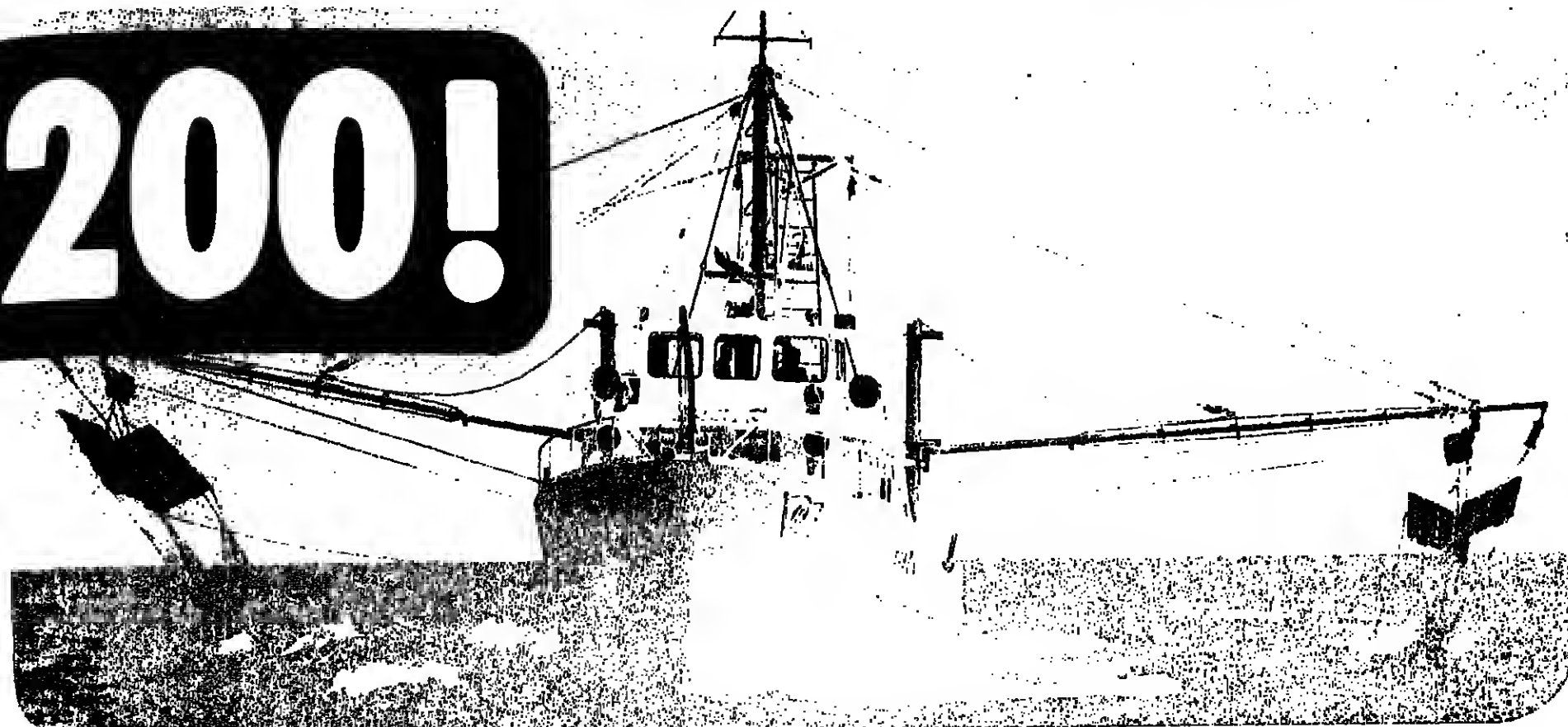
Foreign fishing vessels could be required to use selected Australian ports and to land their catches there for transshipment or processing.

#### Reporting

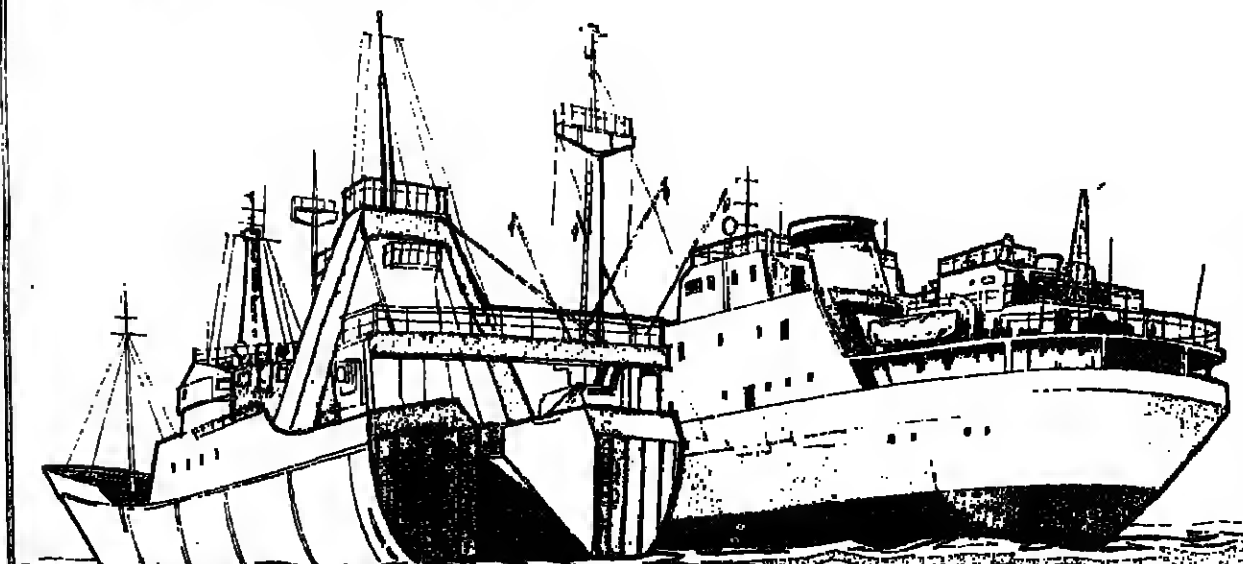
Fisheries authorities should be guided by the general principle of maximising benefits for the Australian fishing industry and the community as a whole, the report says.

Foreign fishing vessels should also be required to report their positions regularly if they were licensed to fish inside the 200-mile zone, provide for government observers, catch information and report before arrival and departure from port.

There is little doubt, says the report, that access to Australian fishing ports by foreign vessels — generally denied at present — would be welcomed by foreign interests.



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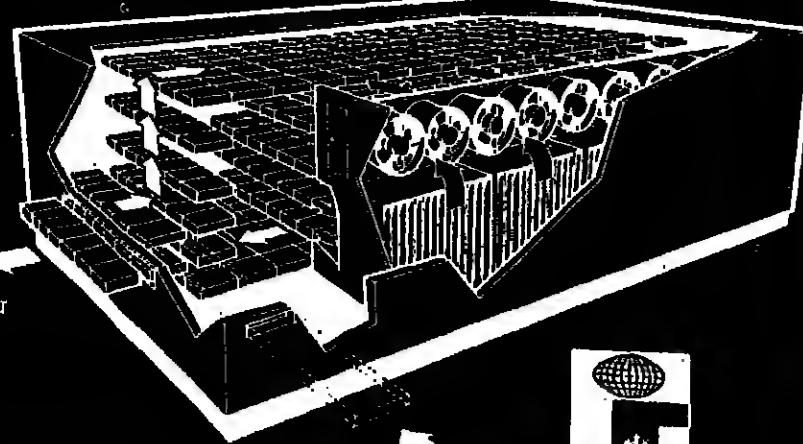
### PROTECTED: The coastal scallop fishery

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# VILLAGERS TAKE BUS TO SUCCESS

ONLY about 10 per cent of the many Co-operative Societies in India are operating profitably and successfully, despite strong governmental and other support. Such a record is, perhaps, inescapable due to the adverse conditions and circumstances in a sub-continent of some 600 million people of which most are illiterate.

The small-scale fishermen, low on the scale economically and socially, illustrate the problem. Only about a third of primary fisheries co-operatives are actually functioning, and of these only some 27 per cent are profitable.

It is, therefore, encouraging to find

## Good road transport is a key factor in the development of one of India's most go-ahead fisheries co-operatives

examples of the successes. On a recent visit to India I was shown round a flourishing fishermen's co-operative in the village of Versova, about 20 miles up the coast north of Bombay.

It is a typical Indian concentration of houses, shops, huts and bazars, and twisting, narrow, crowded streets and lanes.

The smell of fish fills the air, and everywhere there is evidence of fishing activities, from sorting and drying the catch to mending nets. And along the shoreline the drying racks — loaded with the famed Bombay duck — stretch as far as the eye can see.

In this traditional setting the Versova

Fishermen's Multipurpose Co-operative Society was started in 1944 by a local fisherman, Hiraji Chikhale, with a capital of 1,000 rupees. It now has a share capital of one lakh rupees (100,000) and a total fund of more than 1,150,000 rupees (about £23,000). Mr. Chikhale has been the Society's Chairman for the past 25 years.

It is a reflection of the trust and loyalty of the 1,100 members of the co-operative that they have supported Mr. Chikhale through all these years. They have also remained faithful to the paid Secretary, Moli Ram Koli, another former fisherman. He has been elected secretary every five years for the past 30.

When I saw him in one of the several stores operated by the Co-operative he told me that the organisation's turnover in 1976 exceeded

2.6 crores (20,600,000 rupees) and more than 3.5 crores in 1977.

The Co-operative provides for the fisherman's every need, from all his catching gear to engines and spurs. But the fishermen own and maintain their own boats.

"The reason," he said, "for this big, new increase in turnover is because we started a provision store last year and the turnover has already exceeded 1,000,000 rupees."

That store, incidentally, tells its own story of the change taking place in the lives of the fishermen and their families.

It is stocked with the wide variety of packaged foodstuffs to be found in any grocery shop in Europe and with a range of household products, including such "luxury" items as detergents and talcum powder.

That the fishermen are earning more, is

## FNI continues its special reports on the lesser-known fishing industries with this article by CEDRIC DAY

reflected in the rising standard of living, including an army of bright new clothes.

The Society is run by a managing committee of fishermen, elected by the Co-operative members. The committee elects the chairman. Committee members work on a voluntary basis. Only the secretary is paid.

Members of the Society operate 280 mechanical boats, 50 sailboats and 25 canoes. They are starting to mechanise the canoes with small inboard engines. The Co-operative runs an ice-making plant (30 tons a

day capacity) and has a 60-ton cold store.

The ice is cheaper than can be obtained privately and the fishermen can leave their catch overnight, cool, in the cold store for a rupee.

The diesel fuel depot, which has a turnover of 200,000 rupees a year, is open day and night.

There are also two transport co-operatives in the village. Half the villagers belonging to one, and half to the other.

"The chief function of these co-

operatives," explained Mr. Koli, "is to take the women of the village to the retail fish markets in Bombay — there are 42 in the city where they sell the fish caught."

Thus, 650 women and their baskets of fish are taken daily by the five buses and 11 trucks of the co-ops to Bombay at about half the price they would have to pay a private transport firm. They leave at 5 a.m. and return at 2 p.m.

All their fish are sold every day because demand in Bombay outstrips supply. This direct sale by the villagers has cut out the traditional middleman, hence the better price received by the fishermen for their catch.

The same is true of fish sent to the wholesale market for auction. The Society

Turn to Page 60

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## Orissa state develops new fish centres

THE GOVERNMENT of Orissa state on India's east coast is to set up a development authority to provide protective plantations along 400 km of coastline affected by severe cyclones and tidal bores. The authority will also develop marine resources in the region.

Marine fishing in the state will be boosted over the next two years when harbours are commissioned at Dhamra and Astarang. Dhamra harbour is nearly completed and will soon be in use, reports Trevor Driberg.

R. M. Senapati, Orissa's Director of Fisheries was expecting exports of shrimp and sea fish from the state to earn much more in the year ending in March 1978 than the Rs 120 million of 1976/77.

Surveys have revealed rich fishing grounds off Astarang in the Puri district, where the new harbour should be ready before the end of 1979. There are plans there for ice making plants and cold stores. A scheme for 30 mechanised boats for the local fishermen's co-op will be implemented from April 1979.

### Training scheme

The state government has also started a scheme for training fishermen in modern techniques in preparation for the development of the industry based on Astarang. Eventually it is hoped that more than 400 mechanised boats will work out of the new harbour.

In another development, the Fisheries Department is having an all-weather road built from Astarang town to the harbour site.

## Help for West Bengal

THREE countries have offered to help West Bengal develop its fish industry. The United States is willing to fly fish daily to Calcutta from other fishery centres.

The Soviet Union is prepared to set up a fishing harbour and provide the latest methods of deep-sea catching and processing. It would also buy any surplus fish arising from these efforts.

Norway has offered to help in work on fish farming, in constructing a fishing harbour, developing deep-sea fishing and supplying vessels.

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## IN BRIEF

THE UN Development Programme (UNDP) is to provide US\$630,000 for a Baluchistan coast fisheries development project. The agreement covering this aid was signed in Islamabad between the UNDP and the government of Pakistan.

Like many other UNDP-backed fishery projects, this will get technical support from FAO who will work in close association with the Department of Fisheries in Baluchistan. Duration of the project will be three years, from 1978 through 1980.

THE Irish Sea Fisheries Board (ISFB) is searching for new fishing grounds off the south coast. To cost about £100,000, the survey will be planned and carried out in consultation with local fishermen. Announcing this, fisheries development manager John Wright said the accuracy of herrings was putting heavy pressure on existing white fish stocks. It had therefore become necessary to locate new grounds.

A DEVELOPING country badly hit by the spread of fishing limits is South Korea. In 1977, her deep-sea catch slumped by 18.6 per cent, down to 754,000 tons. This was due mainly to the extension of United States and USSR fishery limits out to 200 miles. These are forcing South Korean ships out of North Pacific grounds to other areas such as the Indian Ocean. At the beginning of 1978, South Korea had a fleet of 860 vessels engaged in distant water fishing — 301 in the Pacific, 179 in the Indian and 320 in the Atlantic oceans.

### Correction

DR. ANDRES van BRANDT, writer of the two-part article on the Minifishermen has pointed out a mistake in the second part in the April issue. The knowledge of fish behaviour is decreasing, not increasing, with the development of fishing techniques. "Simple gear," he explains, "requires much more knowledge of behaviour than does highly sophisticated gear and methods. If it is to be successful,

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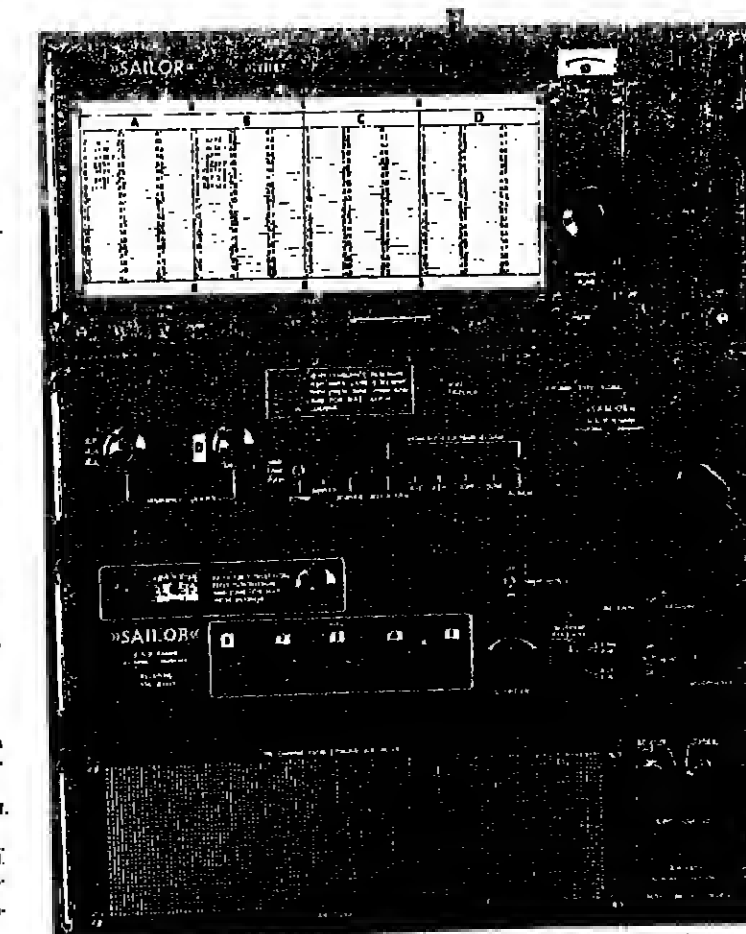
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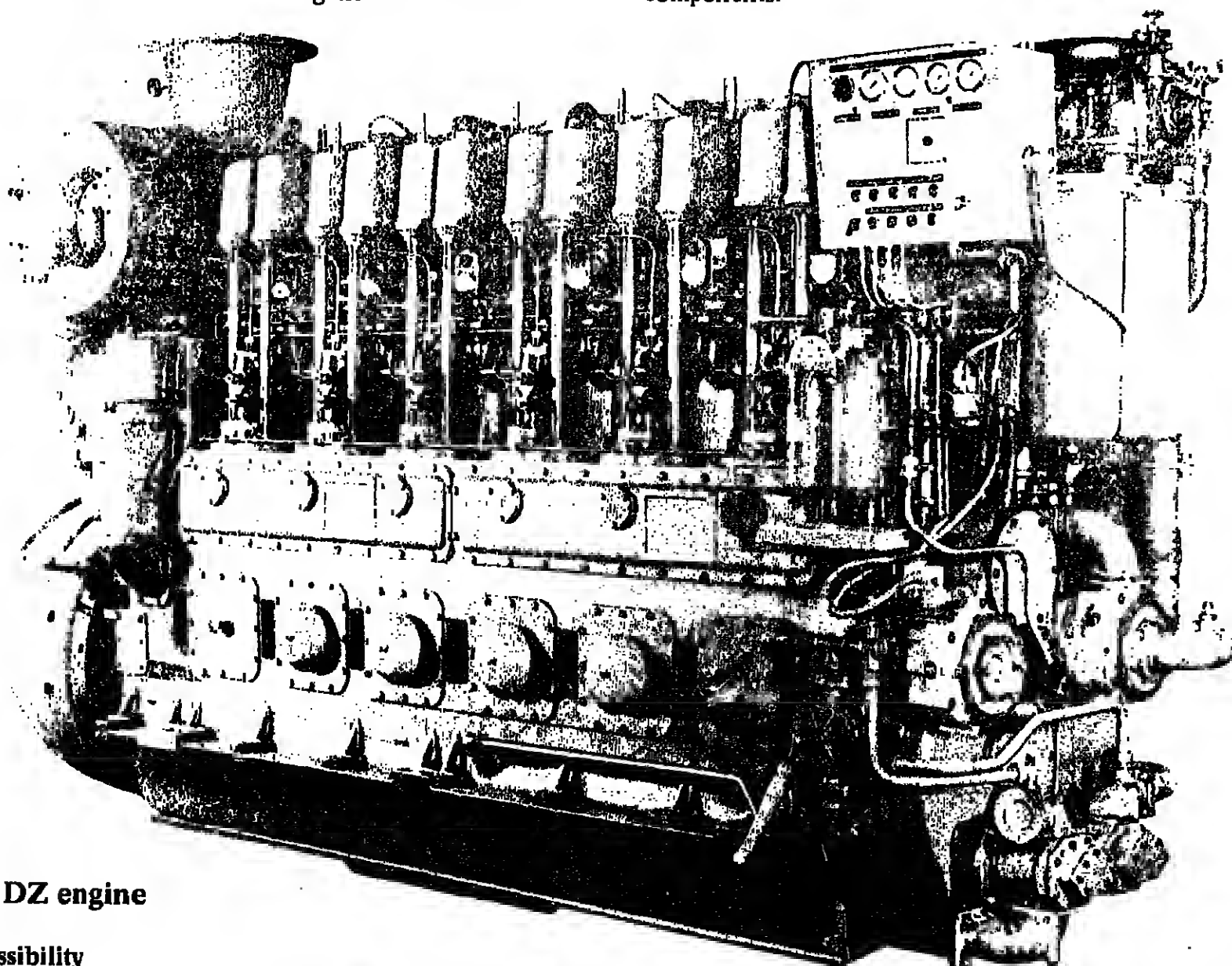
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# Pacific limits force fish cuts

**JAPAN'S SEARCH**



SEE ALSO CENTRE PAGES

UNTIL THE rapid spread of 200-mile exclusive economic zones, Japan was catching 40 per cent of a ten-million ton fish harvest in the waters of other countries. And a high proportion of this four million tons of fish a year came from the Pacific Ocean.

In the past few years many countries bordering the Pacific have declared 200-mile limits. They include the Soviet Union, North Korea on the north-west shores, Canada and the USA on the north-east and New Zealand and Papua/New Guinea in the south. The waters off South America have, of course, been closed for many years by earlier claims to wide limits. Australia will soon join the 200-mile club with legislation now before her Parliament (see Page 26).

China and the Republic of Korea are two countries close to Japan yet to declare a 200-mile zone. By the end of 1978 the Sino-Japanese Fisheries Treaty is due to expire, so there will be discussions between Japan and China on fishing rights.

Japan has been busy discussing the terms under which she can continue to fish in the 200-mile zones of a number of countries. Already, bilateral agreements have been concluded with the United States, Russia, South Africa. Negotiations are taking place with Canada and several other countries.

### Agreements

Some idea of the importance of the changes for Japan can be gained from the cuts in quotas in some areas where agreements have been reached. Thus, where the Japanese took 1,396,000 tons in Soviet waters in 1975, the quota for 1978 provides for

850,000 tons. The cut is mainly of Alaska pollock. But there was also a further reduction of 54,000 tons of herrings and 31,700 tons of flat fish.

In another agreement with the USSR in April the Japanese have had to accept a cut of about 30 per cent in their high seas harvest of salmon and sea trout. This agreement replaces the 1956 convention on fishing in the north-west Pacific. It allows Japan a catch of 42,500 tons of salmon and trout which originated in Soviet Far East streams.

compared with 62,500 tons in 1977.

In wider limits now claimed by the United States, the Japanese permitted catch has gone down from 1,410,000 tons in 1975 to 1,157,000 tons, with the greatest cut again in Alaska pollock.

### North Korea

While Japan has been able to conclude an agreement with North Korea, that country has excluded all fishing craft from a 50-mile military demarcation zone with its 200

mile. Of 80,700 tons taken inside the North Korean EEZ in 1976, some 20,000 tons came from within 50 miles.

Apart from losing more than 700,000 tons to the USSR, the United States and North Korea, Japan has also had to grant Russia quotas of 650,000 tons of fish in her own 200-mile zone.

Further south, Japan caught about 100,000 tons from New Zealand waters in 1977. But by last month there was no agreement and Japanese vessels were excluded from April 1 when the

new NZ limit came into force (See Centre Pages).

Other catches will be affected by the extension of limits by Papua New Guinea, by Australia and by the island states and territories in the South Pacific.

### Initial loss

These and other changes must eventually affect the whole trading pattern in fish and fish products. Early indications are that the initial loss to Japan may exceed one million tons.

During the past year in anticipation of these changes, Japanese trading firms seemed

to over-react and purchased more fish than the market really needed. The result is that the market has been rather depressed in Japan.

Some of the species which Japan will lose or have cut will be such valuable resources as squid, salmon and tuna.

If developing countries in the Pacific could build up a sizeable export trade in these species it would go a long way towards helping them with their economic advantage from their exclusive fishing zones. In fact, the development of such a trade in export trade could be the key to expansion of fisheries in the South Pacific.

## Pressure from New Zealand

IN HER efforts to maintain fishing activities in the South Pacific regions, Japan has had singularly little success with New Zealand, whose 200-mile EEZ came into force on April 1.

The Act claiming this zone gives the NZ government the power to determine mesh sizes and areas where foreign ships can operate; to insist on inspection; and to require reports on catches and of position.

Countries such as the USSR, South Korea and Taiwan have been negotiating for fishing rights inside the EEZ. But Japan, the country that has fished longest there, has had great difficulty accepting the New Zealand view that access to fishing waters should be in exchange for free access of NZ produce into Japanese markets.

New Zealand, reports our correspondent, has for some 15 years been seeking such access and has come up against heavy tariff and non-tariff protective barriers.

### Protection through high prices

As in Europe, protection for primary producers in Japan is achieved through maintaining a high level of prices and this in turn retards consumption.

New Zealand has argued with Japan that consumers there would benefit from larger permitted imports of meat and dairy products. The Japanese housewife can pay up to ten times the New Zealand price for beef and five times for butter and other dairy products.

The possibility of "exchange" relaxation has been discussed by the two countries for

many months but without any real movement from the Japanese side. As a result, from April 1 Japanese ships were excluded from the New Zealand 200-mile zone.

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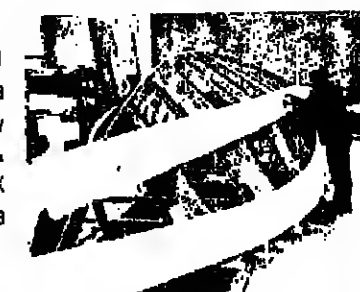
See next page for one possible answer to Japan's supply problems...

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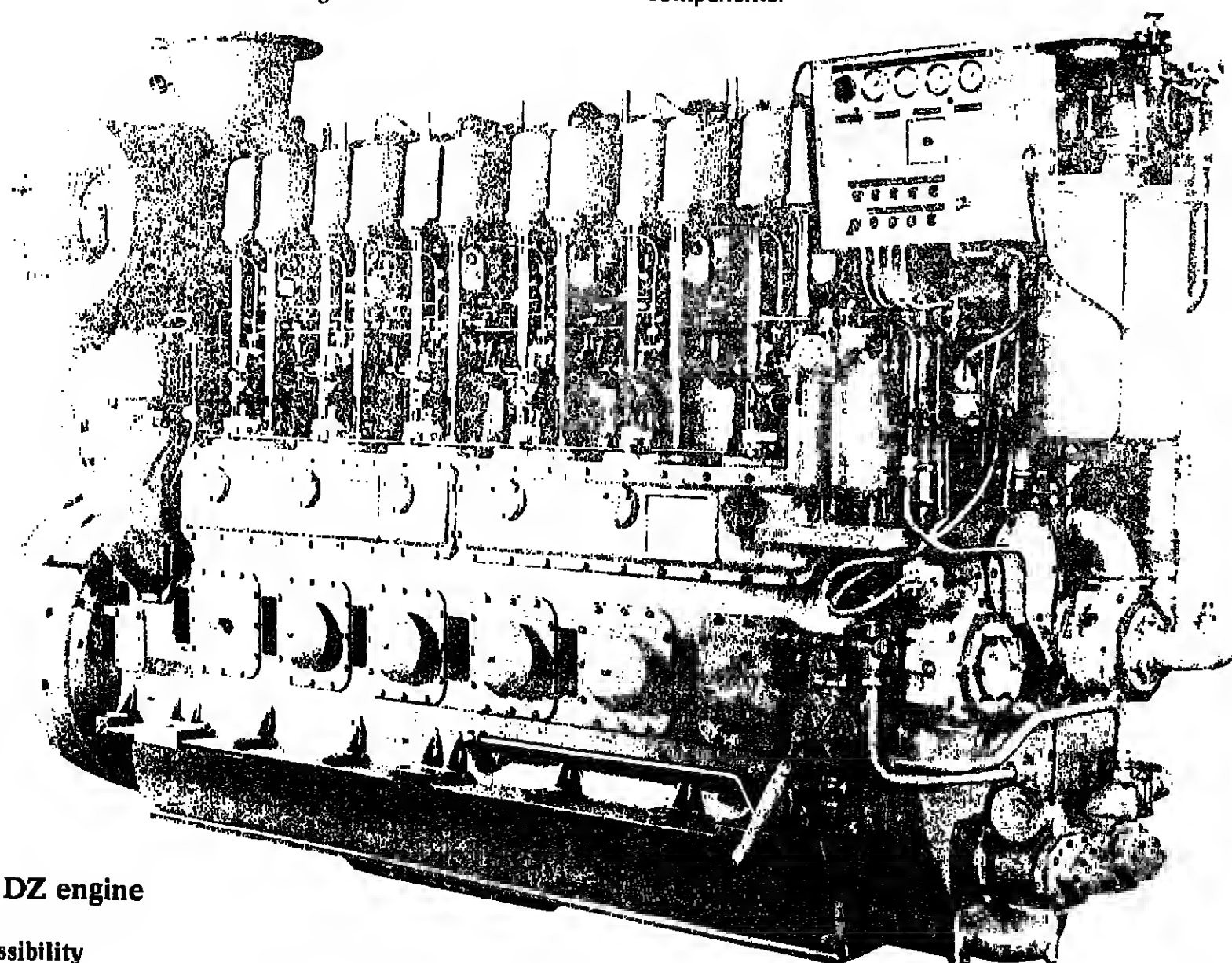
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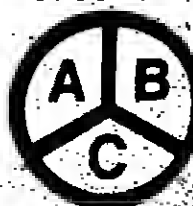
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# Pacific limits force fish cuts

**JAPAN'S SEARCH**



UNTIL THE rapid spread of 200-mile exclusive economic zones, Japan was catching 40 per cent of a ten-million ton fish harvest in the waters of other countries. And a high proportion of this four million tons of fish a year came from the Pacific Ocean.

In the past few years many countries bordering the Pacific have declared 200-mile limits. They include the Soviet Union, North Korea on the north-west shores, Canada and the USA on the north-east and New Zealand and Papua/New Guinea in the south. The waters off South America have, of course, been closed for many years by earlier claims to wide limits. Australia will soon join the 200-mile club with legislation now before her Parliament (see Page 26).

China and the Republic of Korea are two countries close to Japan yet to declare a 200-mile zone. By the end of 1978 the Sino-Japanese Fisheries Treaty is due to expire, so there will be discussions between Japan and China on fishing rights.

Japan has been busy discussing the terms under which she can continue to fish in the 200-mile zones of a number of countries. Already, bilateral agreements have been concluded with the United States, Russia, South Africa. Negotiations are taking place with Canada and several other countries.

### Agreements

Some idea of the importance of the changes for Japan can be gained from the cuts in quotas in some areas where agreements have been reached. Thus, where the Japanese took 1,396,000 tons in Soviet waters in 1975, the quota for 1978 provides for

850,000 tons. The cut is mainly of Alaska pollock. But there was also a further reduction of 54,000 tons of herrings and 31,700 tons of flat fish.

In another agreement with the USSR in April, the Japanese have had to accept a cut of about 30 per cent in their high seas harvest of salmon and sea trout. This agreement replaces the 1956 convention on fishing in the north-west Pacific. It allows Japan a catch of 42,500 tons of salmon and trout which originated in Soviet Far East streams,

compared with 62,500 tons in 1977.

In water limits now claimed by the United States, the Japanese permitted catch has gone down from 1,410,000 tons in 1975 to 1,157,000 tons, with the greatest cut again in Alaska pollock.

### North Korea

While Japan has been able to conclude an agreement with North Korea, that country has excluded all fishing craft from a 50-mile military demarcation zone with its 200-mile zone.

Further south, Japan caught about 160,000 tons from New Zealand waters in 1977. But by last month there was no agreement and Japanese vessels were excluded from April 1 when the

new NZ limit came into force (see Centre Pages).

Other catches will be affected by the extension of limits by Papua New Guinea, by Australia and by the island states and territories in the South Pacific.

### Initial loss

These and other changes must eventually affect the whole trading pattern in fish and fish products. Early indications are that the initial loss to Japan may exceed one million tons.

During the past year, in anticipation of these changes, Japanese trading firms seemed

to over-reach and purchased more fish than the market really needed. The result is that the market has been rather depressed in Japan.

Some of the species which Japan will lose or have cut will be such valuable resources as squid, salmon and tuna.

If developing countries in the Pacific could build up a sizeable export trade in the species it would be a blow to Japan's economy and outflow from their economies. In fact, the side effect of such a limit is a report made in March 1978 by the South Pacific.

## Pressure from New Zealand

IN HER efforts to maintain fishing activities in the South Pacific regions, Japan has had singularly little success with New Zealand, whose 200-mile EEZ came into force on April 1.

The Act claiming this zone gives the NZ government the power to determine mesh sizes and areas where foreign ships can operate; to insist on inspection; and to require reports on catches and of position.

Countries such as the USSR, South Korea and Taiwan have been negotiating for fishing rights inside the EEZ. But Japan, the country that has fished longest there, has had great difficulty accepting the New Zealand view that access to fishing waters should be in exchange for freer access of NZ produce into Japanese markets.

New Zealand, reports our correspondent, has for some 15 years been seeking such access and has come up against heavy tariff and non-tariff protective barriers.

### Protection through high prices

As in Europe, protection for primary producers in Japan is achieved through maintaining a high level of prices and this in turn retards consumption.

New Zealand has argued with Japan that consumers there would benefit from larger permitted imports of meat and dairy products. The Japanese housewife can pay up to ten times the New Zealand price for beef and five times for butter and other dairy products.

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many months but without any real movement from the Japanese side. As a result, from April 1 Japanese ships were excluded from the New Zealand 200-mile zone.

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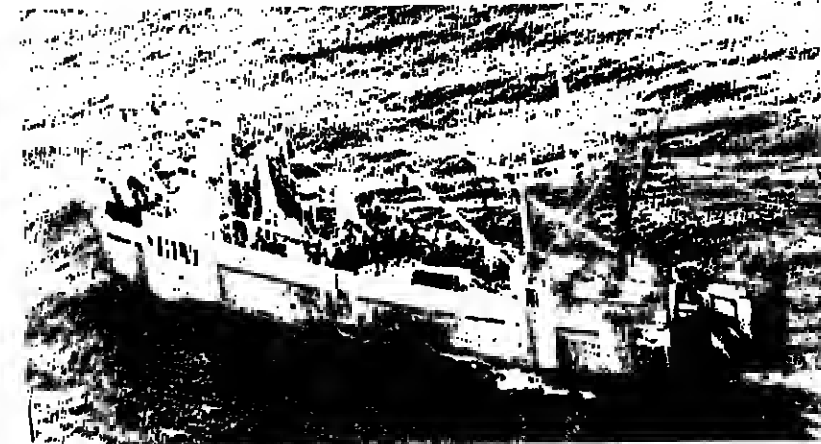
## JAPAN'S SEARCH FOR FISH



Japan's widening search to replace the fish lost through wider limits has brought her technologists to the United Kingdom. There, the British White Fish Authority has been working with Nippon Suisan Kaisha in a test project to make surimi from blue whiting. The project and what it might accomplish is described here by a member of the WFA's Industrial Development Unit in Hull...

# SAUSAGES FROM BRITISH BLUE WHITING

By  
Tom Wray



Arrested, confiscated and bought back — the Tomi Maru No. 81

THE JAPANESE company that lost a ship because she broke fishing laws in New Zealand has been allowed to buy her back with her catch.

In February, the Tomi Maru No. 81 was ordered to be confiscated after her captain and fishing master had been fined for working in a restricted zone and for using an illegal net.

Tenders were then called for her and for her 300 tons of fish. There were nine bids and last month NZ Fisheries Minister Jim Bolger said the government had accepted the tender from her former owners, Kanai Gyogyo KK.

In March another Japanese ship, the Taiko Maru No. 2, was arrested near Cape Farewell by the frigate Otago. Her captain and senior officers were charged with using mesh less than 100mm in the cod-end, using a liner and using a net with more than one layer of mesh in the cod-end.

When they appeared in a Wellington court, the magistrate found them guilty but postponed sentence. He said that the case would probably end up in one of the higher courts.

In both these cases alleged use of illegal size mesh has been an important issue.

The type of mesh together with the use of double cod-ends has, reports *FN's* correspondent, been a feature of foreign fishing in New Zealand waters by both the Russians and the Japanese.

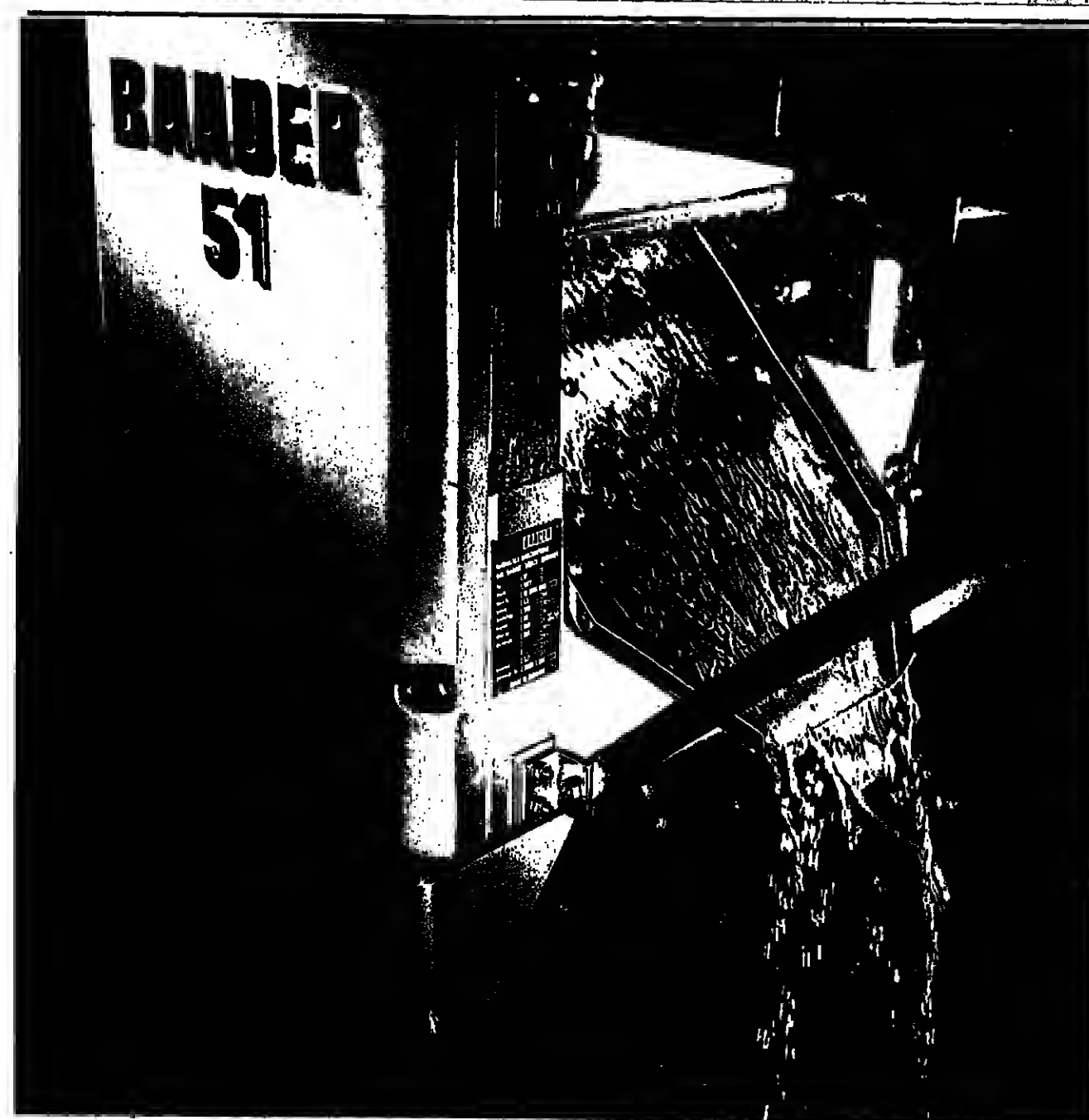
## Company buys own ships

The local industry has complained about this over a period of ten years or more and so has been very pleased at the prompt application of the new regulations.

With the 200-mile EEZ now in force, the government has set up a fisheries control centre in the offices of the Ministry of Agriculture and Fisheries in Wellington. It will monitor all foreign fishing within NZ waters.



Arrested and charged — the Taiko Maru No. 2



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shown at  
CATCH '78  
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BECAUSE of the extension of fishing limits by the United States and the USSR, Japan has suffered a massive reduction in her catch of Alaska pollack.

A large proportion of this catch, which once reached three million tons a year, provided the basic raw material for surimi, a highly refined mince used for a variety of Japanese traditional ready-to-eat food products such as kamaboko and fish sausage.

Japanese production of surimi in 1977 was about 450,000 tons. Of this, 300,000 tons was made in shore-based factories and 150,000 tons in factory ships at sea. This output represents more than 1.6 million tons of whole fish.

Owing to the massive cut-back in the haul of Alaska pollack, Japan is urgently seeking other species from which to produce surimi — hence her keen interest in the United Kingdom's large and presently under-exploited blue whiting resource.

Working with Nippon Suisan Kaisha, a major Japanese catching and processing company, the White Fish Authority is engaged in a pilot-scale operation at Stornoway in the Isle of Lewis, Scotland. This could lead to the export of hundreds of thousands of tons of British caught and processed blue whiting surimi to Japan every year.

A stock of between eight and 15 million tons of this small cod-like fish occurs along the edge of the continental shelf to the west of the British Isles in late winter and early spring. It is estimated that this stock should be capable of sustaining an annual yield of at least one to two million tons, which is more than the present total catch of all UK species (1,034,160 tons in 1976).

### Replacement

In view of the major cut-backs in the British distant water fishing fleet, attempts are now being made to develop the blue whiting as a partial replacement for our own traditional supplies of cod and haddock.

Work by the WFA and Torry Research Station, in co-operation with a number of UK fish processing companies, has shown that attractive human consumption products such as breaded fillets and fish fingers can be produced from blue whiting and that there are good potential markets for this fish in the UK.

There are also potential markets in other countries, and it was in an attempt to develop these that the WFA approached various Japanese interests in 1977. Following a visit to Japan in December 1977 by WFA Chief Development Engineer Mike Hatfield, it was agreed to set up a joint pilot-scale surimi production project with Nippon Suisan Kaisha (Nissui for short) in the UK in the spring of 1978.

Nissui is the largest fish company in Japan with approximately 7,000 employees, some 405,000 gross tons of ocean-going vessels, 22 food processing and freezing plants, 51 subsidiary and affiliated firms, and an annual business turnover of 376,000 million (£916.5 million).

In 1977, the company produced about 120,000 tons of surimi, mostly from Alaskan pollack, but has become increasingly worried about supplies. This is why it is now looking at the feasibility of using blue whiting. Preliminary tests in Norway last year showed that very high quality products can be produced from the mince obtained from blue whiting, and Nissui is now strongly interested in securing supplies of this fish.

### For evaluation

The main purpose of the pilot-scale project at Stornoway is to produce a small quantity (65 tons maximum) of high quality blue whiting surimi for evaluation in Japan.

Three Japanese experts are supervising the production process, which is being carried out in conjunction with WFA and Torry Research Station staff.

The surimi process involves heading and gutting — flesh separation — washing the flesh — de-watering — refining — addition of salt, sugar, sorbitol and polyphosphate —



"Ahi" — the consistency so essential for surimi. The product must not be bent double...

mixing — washing and de-watering — repeated several times and serves to de-colouration and water-soluble which would otherwise spoil the product.

Since the surimi depends mainly on the quality of the fish, the blue whiting must be specially selected. The fish is being preserved in a number of ways: chilled fresh water, boxed and iced or frozen. The batches of surimi produced from various inputs will then be assessed for colour, elasticity and texture. This is done at Stornoway.

The blue whiting will be exported to Japan, where it will be made into a number of consumer products for further evaluation. Chief among these is kamaboko, which is produced in many varieties differing in shape, size and method of cooking. Ingredients include chopped vegetables, portions of various kinds of spices are often added and cooking methods include boiling, frying, baking.

broiling, or any combination of these. WFA staff are to visit Japan to witness the production of these products from the UK test shipment.

If the pilot-scale trials succeed, they could lead to considerable quantities of blue whiting surimi being exported to Japan in the years ahead. Although Japan may want to send her own factory ships to fish for this species inside the UK's own 200-mile fishing zone, the best option as far as the UK industry is concerned would obviously be for the blue whiting to be caught by British vessels and processed into surimi in UK factories.

Another option would be for British vessels to catch the fish and transfer their catches to Japanese ships for on-board processing into surimi. The WFA naturally favours full catching and processing involvement by the UK industry and this is one reason why the pilot-scale surimi project is being carried out.

### Processing trials

In addition to the joint project with Nissui to produce surimi, the WFA is continuing with its own processing trials of blue whiting for the UK market. One of the main limitations in producing human consumption products from blue whiting for the UK market at present is the lack of suitable filleting machinery for this rather small fish. But work on this problem is to the forefront of the WFA-Torry programme, and substantial progress has already been made in co-operation with foreign machinery manufacturers towards the production of suitable equipment.

The requirement is for high-speed machines, small enough to operate in multiple parallel fashion, and capable of



The Japanese fish company Nippon Suisan Kaisha discuss blue whiting with WFA principal mechanical engineer Bill Siddle (second left)

being operated at sea or ashore. To this end, the WFA has been working with the West German Baader company over the past three years to develop such a machine — the Baader 121.

A prototype version of this machine was recently loaned to the WFA for processing tests on thawed frozen-at-sea blue whiting at the WFA's premises in Hull. Although minor problems were encountered owing to the prototype nature of the machine, it worked well and enabled a considerable quantity of blue whiting laminated blocks to be produced for the WFA's market development trials.

The results obtained have also enabled Baader to accelerate the building of the first three production machines, one of which has been ordered by the WFA for evaluation at Stornoway in the current season. This machine will also be used to prepare some of the fish for surimi production.

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## PORTS & MARKETS

### Other fish for Peru meal plants

PERU'S Ministry of Fisheries authorised restricted industrial fishing by anchovy boat owners for sardines (pilchards), jurel (jack mackerel) and agujilla (sauri) from April 17.

Fishing is allowed between Chicama and Chimbote in the north down to Ilo in the south. It is restricted to Monday through Friday at each week 15 miles off the coast with a maximum of 60 boats each day at one time.

The fish is sold to Pescapero for reduction to meal. A maximum of 10 per cent. of other species is allowed in the catch.

Anchovy fishing was allowed on a restricted scale in the far south up to March 20.

## CANADA PLANS A SUPERPORT

A FISHING boat basin with berths for more than 350 vessels, some up to 200 ft. long, is included in an ambitious \$100-million redevelopment plan for Vancouver harbour in British Columbia.

Central Waterfront Consultants, a group of architects who designed the new harbour, worked on the premise that because of the extension of Canada's fishing limits to 200 miles, "we can expect 40 to 50 trawlers up to 200 ft. long in the near future."

The boats would be berthed behind a breakwater, and on shore net and equipment storage facilities would be provided, reports *FNi* correspondent Les Rimes.

In drawing up a design for the fishing boat harbour, the CWC group consulted with The Pacific Trawlers Association, Fisheries Association of B.C., Fishermen's Co-op, Pacific Gillnetters Association, B.C. Fishermen's Independent Co-op, Fishing Vessel Owners Association, and the federal fisheries department.

Under the broad concept, Canadian Fishing Company will move from its present location, making room for the necessary expansion of Central Pier for larger container ships.

The National Harbours Board would take over the Canadian National Railways Pier, built for the company's coastwise ships, and would provide space in the pier for Caniseco. Other

fishing operations would also be located in the pier.

Part of the overall plan is to provide increased public access to the waterfront. The CWC envisages a walkway around the top of the CN pier so that visitors could walk the length of the pier and look down, through windows, to see the cannery operation.

The plan includes construction of a city market at the shore end of the development, with the emphasis on stalls to sell fresh fish.

Port Manager Fred Spoke said the CWC plan is a "conceptual" and could be altered to tie in with plans of private developers. But he emphasised that additional adequate facilities for fishing boats were high on the priority list in Vancouver harbour.

### US held more frozen fish...

HOLDINGS of frozen fish in United States cold stores at the end of 1977 amounted to 442.35 million lb., up by 19 per cent on holdings at the end of 1976.

Within this total, holdings of frozen blocks and slabs rose by 26 per cent to 76.9 m. lb. with cod and haddock taking the biggest jump. Cod blocks were up by 126 per cent to 33.8 m. lb. and haddock rose 38 per cent to 8.36 m. lb.

Although there was a smaller rise in holdings of frozen fillets and steaks, by 12 per cent 200.3 m. lb., cod again showed the biggest jump, by 74 per cent to 28.1 m. lb.

Also contributing to the increase were holdings of frozen shrimp which were up by 34 per cent to 97.9 m. lb. and crabs which rose by 33 per cent to 33 m. lb.

By the end of February 1978, total holdings had fallen to 340.9 m. lb.

### Sri Lanka ships shrimps

CEYLON Fisheries Corporation's first export shipment of shrimp in 1978 totalled 15 tons, which was 75 per cent of its total for the whole of 1977. The consignment was taken in the *Neptune Agate* and went to Japan. It earned US\$90,000. The Corporation hopes to export a further 300 tons of shrimp in 1978 and this should earn about \$1.8 million.

The shrimp were bought by the Corporation direct from fishermen-producers, instead of from middlemen as in the past.

### ...but meal use dropped

FISH MEAL production in the United States fell by nearly 20,000 tons last year, from 299,000 tons in 1976 to 269,950 tons.

Production of fish solubles also dropped, from 133,000 to 123,424 tons.

Meal imports were also substantially down, from 140,377 tons in 1976 to 81,491 tons last year.

## BIG RISE-IN VALUE

ALTHOUGH rising prices have sent the total value soaring, there has been little change over the past three years in the volume of India's shrimp exports.

Frozen shrimp makes up about 90 per cent. of India's outside trade in marine products.

### Top eaters

HONG KONG is the world's fourth largest per capita consumer of fish. The average a year for everyone of the territory's 4.5 million people works out at 49 kilos.

These facts were disclosed by the Hong Kong government's Director of Agriculture and Fisheries, Mr. Ted Nicholas, on his return from a conference of the Indo-Pacific Fishery Commission in Manila.

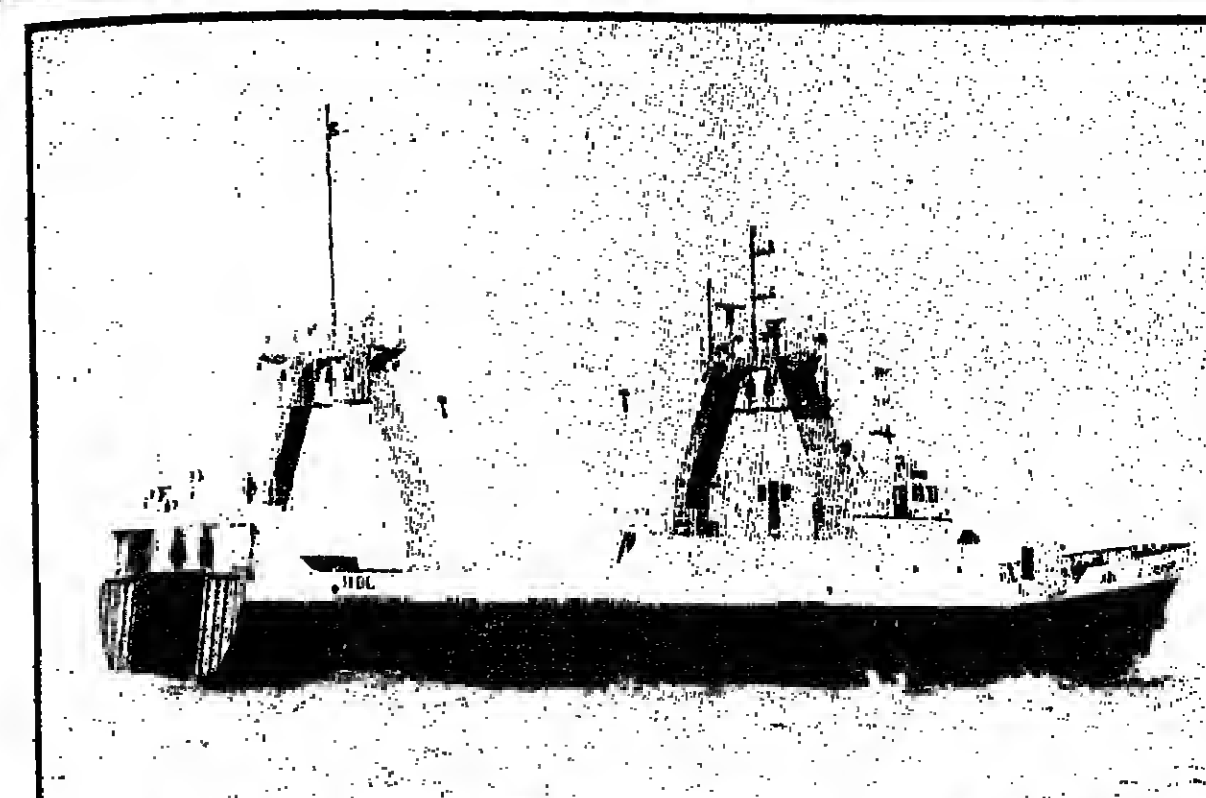
According to Mr. Nicholas, 25 to 30 per cent. of the total protein intake in the diet of Hong Kong people comes from fish. Most of it is caught by local fishermen, with imports mainly from the People's Republic of China.

Figures issued by the Marine Products Export Development Authority (MPEDA) show that the shrimp trade amounted to 46,831 tons (worth Rs 943.46 million) in 1975, 47,952 tons (Rs 1,606 m.) in 1976 and 47,239 tons (Rs 1,562 m.) in 1977.

In 1970, India's 22,135 tons of export shrimp fetched Rs 242.5 m. Although India is a top producer and exporter of shrimp, there are disturbing indications that stocks are being depleted.

Today as much as 14 per cent. of exports consist of small shrimp of 500 count or more to the lb. And 90 per cent. of shrimp netted in the Gulf of Mannar are normally have grown to larger.

MPEDA has suggested a ban on these smaller shrimp.



THE 56.4 metre long stern trawler C.S. Forester set a new British earnings record for wet fish when a 190-ton catch landed in Hull in April grossed £92,458. This broke the earlier record set by the same ship and her Skipper Dick Taylor in 1977 by £24.

Owned by the Newington company, the C.S. Forester was built in 1969 and is powered by a Stork-Werkspoor

### Record maker

engine developing 1950 hp. She was the top-earning trawler in the UK fleet in 1977 with a total of nearly £740,000.

Her big April landing was taken during a 23-day voyage to water off North Norway and in the Barents Sea.

"Obviously we are very pleased with the trip," commented Skipper Taylor, who alternates command of the C.S. Forester with Skipper Bill Brettell. "When we think that the industry is in the depths of despair, it is very nice to come up with a trip like this."

## NEW QUALITY LAWS

AT LEAST one in five of some 260 fish processing plants along the coast of India could feel the full effects of a new law on quality control presented to the current session of Parliament.

These are plants —

mostly in eastern India and south Kerala — said to lack the hygienic and sanitary facilities needed to maintain adequate standards of quality control.

They have failed to qualify for self inspection under the government's present export inspection scheme.

A comprehensive amendment in the quality inspection

### India.....1

law will tighten up controls, says D. C. Maxumdar, director of the Export Quality Inspection Agency.

Changes in the pattern of foreign trade over the past 15 years had made the existing laws obsolete. For example, goods carrying an official certificate could not be withdrawn even if they were observed later to be below standard. The amendments would remedy this and would provide for prosecution of inspecting officials and exporters for violations.

Meanwhile, a considerable effort had been made to improve controls. An official of the Agency was present in every seafood exporting plant to check quality from the purchase of raw material to shipment.

The United States Food and Drug Administration (FDA) which had complained about quality violations by Indian exporters was now satisfied with quality controls operating in India.

Rejections by the FDA in 1977 amounted to less than four per cent of total exports. When the amendments come into effect, even this is expected to be eliminated.

### India.....2

substantial expansion of its trawling activities. It has applied to buy six second-hand trawlers and to charter six more. The company already runs two imported and six Indian-built vessels.

Indian Tobacco Company (ITC) proposes to double its trawler fleet by importing two from Holland.

The government is said to have decided to allow more big companies to enter the industry to speed-up expansion, particularly in deep-sea trawling. But the legislative assembly of Kerala state has protested against the issue of licences to large industrial houses.

Replying for the central government, Agriculture Minister Surjit Singh Barnala said this had become necessary because of the massive investment that deep-sea fishing demanded.

At present no deep-sea trawlers were operating in Indian waters. The government planned that at least 200 would be in service by the end of 1978.

Union Carbide plans a

### Trawlers

Brooke Bond has applied to import two second-hand trawlers from South Korea. Hindustan Lever wants to import four trawlers and to charter two factory ships. JK Chemicals wants to import two trawlers.

New India Fisheries Ltd., a member of the Greaves Cotton-Thapar Industrial group, has already imported nine trawlers; two are chartered from Japan and the company is asking to buy them outright.

Union Carbide plans a

## Chile town seafood complex...

CONSTITUCION, a sea port town in the central region of Chile, may become the centre of a new seafood industry complex. The possibility of this development was discussed recently by fishery experts and economists at a special meeting in the town.

With a population of about 11,500, Constitucion is between Sao Antonio and Talcahuano, two important fishery centres.

### Crispy cod lead

BIRDS EYE FOODS is keeping up the pressure to hold its major share of the £24 million British market for battered fish products.

Between 1975 and 1977, the company's sales of these products rose by more than 25 per cent., with its share of retail packs rising from 51 to 62 per cent.

The original products in the range included Crispy Cod Steaks, Cod Fries and Crispy Cod and Chips. In October 1976, two new products were added — Crispy Haddock Steaks and 4 Crispy Cod Portions.

Successful launching followed by wide consumer acceptance of these two products have pushed sales volume up a further 12 per cent.

"We intend to keep up the pressure in 1978," says Birds Eye. "Sales for the range in January were 11 per cent. up on the same period last year, which was in itself the previous record month, and our market share rose to 71 per cent. of the battered fish market."

Crispy fish is the second most important item in the company's total volume of fish sales. At the top are fish fingers with 40 per cent. of sales.

### Investment

But the regional authorities are hoping to attract investment for a seafood complex.

Also being considered is the installation of cranes and other fish handling equipment on a pier owned by the paper company at Maguallin, seven km. south of Constitucion.

The area around Constitucion offers very favourable conditions for turning out a wide range of fishery products, the meeting was told.

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## PORTS &amp; MARKETS

# Hull says why it should be the top port

THE DECLINE of the deepsea fleet has cast doubt over the future of the two great English trawling ports on the Humber. Last year, Grimsby set out its arguments why it should be preferred over Hull as the port of the future.

Last month, the Hull Fishing Vessel Owners' Association put the case for its port. This report, said the Hull City Council in a supporting statement, shows that the Albert and William Wright Dock installations in Hull are the natural choice "as a headquarters location for any restructured Humber, or national, fishing industry."

Continuing further, Councillor Louis Pearlman found that the Association's technical assessment and financial calculations "demonstrate the all-round

operational superiority of the Hull fish docks."

In the view of the Association, more than £2 million a year could be saved by concentrating wet and freezer fishing in one port. The industry is finding it increasingly difficult to spread its diminished fleet over two ports and must therefore concentrate its activities.

## Big trawlers

The Association then argues that Hull "is unquestionably the better port on the Humber for the operation of the larger fishing vessels in general and the 34 freezer trawlers in particular." It is hoped that foreign trawlers will also be persuaded to use its facilities.

Comparing dock operating and landing costs the Association finds that a freezer trawler using Hull's Albert Dock saves £20,000 a year.

Hull facilities offer sufficient quayside berths for 25 vessels. But in Grimsby when more than three or four freezers are

in port, they have to be berthed at least two abreast. And about £750,000 has been invested by the Hull trawler companies in new plant and buildings since the industry moved to the Albert Dock in 1975.

Of the 28 freezers in service, 28 are based on Hull. As a result, this port has the greater investment in landing facilities.

Other advantages claimed include a dry dock, wider entrance, training facilities and the location in Hull of the flume trawl test tank.

The Grimsby unofficial reaction to all these claims was prompt and caustic. "Grimsby is surviving because the port is helping itself," said one owner. "Hull's hopes seem to rest on going to the government with a begging bowl."

"A report like this may impress a few people outside the industry," said another owner, "but it does not fool anyone inside it. Grimsby has always had the best markets and that is why Hull is in the mess it is in now."

## REPAIR DEAL WITH USSR

FOREIGN fishing fleets will be allowed greater use of facilities in Canadian ports, including repairs and crew, Fisheries Minister Roman LeBlanc announced in April.

This was expected to help close a deal between the Soviet Union and the Canadian National Railways dry dock in St. John's, Newfoundland. The Russians were offering a \$200,000 contract for major repairs to two ships if they could change crews during repair time.

This was approved and the government is encouraging a long-term contract with the Russians for further repair work. Until now, foreign fishing vessels could only use Canadian

ports to refuel and revictual and to allow crews to have a break ashore.

Minister LeBlanc has said that he wants more port privileges for foreign fleets.

Port restrictions were imposed on foreign vessels before Canada had her 200-mile limit because they were seen as the only means she had of curbing the growth of fishing off her east coast.

Licence and other controls since the EEZ was claimed have sharply reduced the number of foreign ships in the north-west Atlantic. This has hurt business in east coast ports and federal officials hinted earlier this year that the restrictions might be relaxed.

## Japan eats less fish

ONE OF the consequences of the exclusion of Japanese fishermen from extended fishing areas appears to have been a sharp drop in the Japanese catch in 1977, a rise in prices and a decline of more than eight per cent in fish consumption.

The Japanese, with 36 kibu a year, are now the top among consumers of fish. Before the proliferation of exclusive economic zones, there were already fears that the total catch which reached 10.6 million tons in 1976 would fall well behind demand before the 1980s.

With more than 40 countries now applying 200-mile zones, catches in distant waters have slumped and the supply-demand gap is widening faster and earlier than expected.

To counter this, the Japan Fisheries Association is turning its attention to aquaculture, to stock enhancement and to the utilisation of once-neglected species and areas. It sees salmon ranching as one of the very promising areas of development and during 1976 started a five-year programme to boost hatchery output. There are plans for 17 more fish farming centres to be in operation before 1980.

In the zone surrounding Japan's four main islands, the 1975 catch was 5.5 m. tons. It has been estimated, however, that the resource that could be developed and eventually harvested from the zone might be several times this total.

## NEW MACHINES IN RUSSIAN CANNERIES

THE ORGANISATION Tekhrybrom recently supplied and installed a new mechanised processing line in a large cannery in the Kaliningrad area on the Baltic coast of the USSR.

Run by the Baltyski fish canning combine in Svetlyy, this cannery specialises in the production of canned "Atlantic sardines." The new line mechanises cleaning, packing and loading of the sardines, but some machines are still being improved.

Since it began to concentrate on packing sardines in oil a few years ago, the profitability of the combine has risen by nearly nine per cent. Two million cans of sardines were packed in 1977.

### First stage

Re-equipping the factory in conjunction with Tekhrybrom is being carried out in two stages from 1976 to 1980 and from 1981 to 1985. The first stage is planned to raise sardine output to 30 million cans a year. In another canning project, in the Northern Refrigerated Fleet based on Murmansk, Soviet engineers have been

working on plant for the canning of capelin caught in the Barents Sea.

From 4.5 million cans of canned capelin in 1974, production rose last year to 25m. cans.

### Aluminium cans

A significant developing during the year was the use of machinery for the packing of aluminium cans. New processes and plant are reported to be involved and some eight million aluminium cans were packed. The factory fleet has now changed over to these cans.

An all-out effort is being made this year to achieve the maximum use of capelin in food products. In the USSR, as in Norway and Iceland, the bulk of the haul of these small shoal fish goes into the meal plants.

During 1977, the crew of the mother ship, *Grigory Lyzenko*, began production of cans of small-sized dressed capelin and they turned out 350,000 packs. Another factory ship has been re-equipped to produce 75,000 packs a day. By the end of 1980, four more ships will be similarly equipped.

## German catch

THE West German catch from deepsea and coastal waters gave landings in 1977 of 394,400 metric tons, compared with 425,800 tons in 1976.

Landings of cod fell from 106,400 to 88,500 tons, haddock from 20,200 to 8,300 tons, herring from 22,600 to 8,100 tons, and salmon from 102,100 to 67,700 tons.

There was also a fall in landings of shrimp and crabs, from 27,100 to 18,300 tons. But landings of red fish (ocean perch) rose from 54,700 to 82,300 tons, and of "other species" from 92,700 to 121,300 tons.

## ICE PLANTS AND NET FACTORIES

THE SRI LANKA government drive to boost the country's fishing industry is receiving increasing assistance from organisations in the developed countries. One of these is the Norges Godtjenning Ungdomsforbund, which is already associated with the CEY-NOR boatyard in the north (see FNI, February 1978).

This Norwegian organisation has so far provided about Rs 30 million since 1968 to assist various aspects of fishery development. On a recent visit to Sri Lanka, Arne Florio of NGU told FNI correspondent, Nalin Wijesekera that the excellent co-operation it was getting from the Sri Lanka government had encouraged it to increase its participation.

More than Rs 45 million will be provided in project aid for the making of fishing gear, for ice plants, for housing and water schemes for fishing families, and for a small plant to test the development of FPC production.

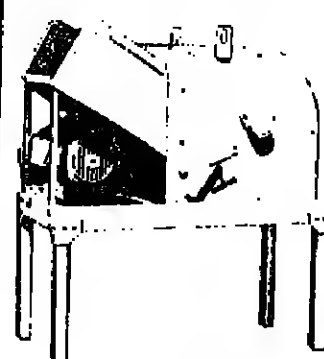
### New houses

Five ice plants are to be provided at a cost of Rs 1 m. each. Three nylon fish net factories are to be set up, and also a rope and float factory. In Jaffna, where the CEY-NOR boatyard is situated, 47 housing units are to be built, complete with water, sanitation and other community services.

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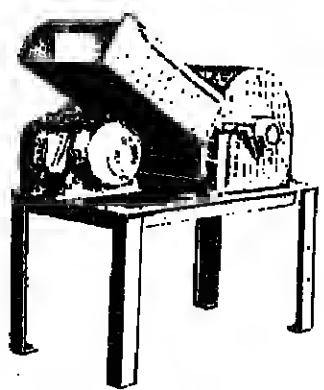
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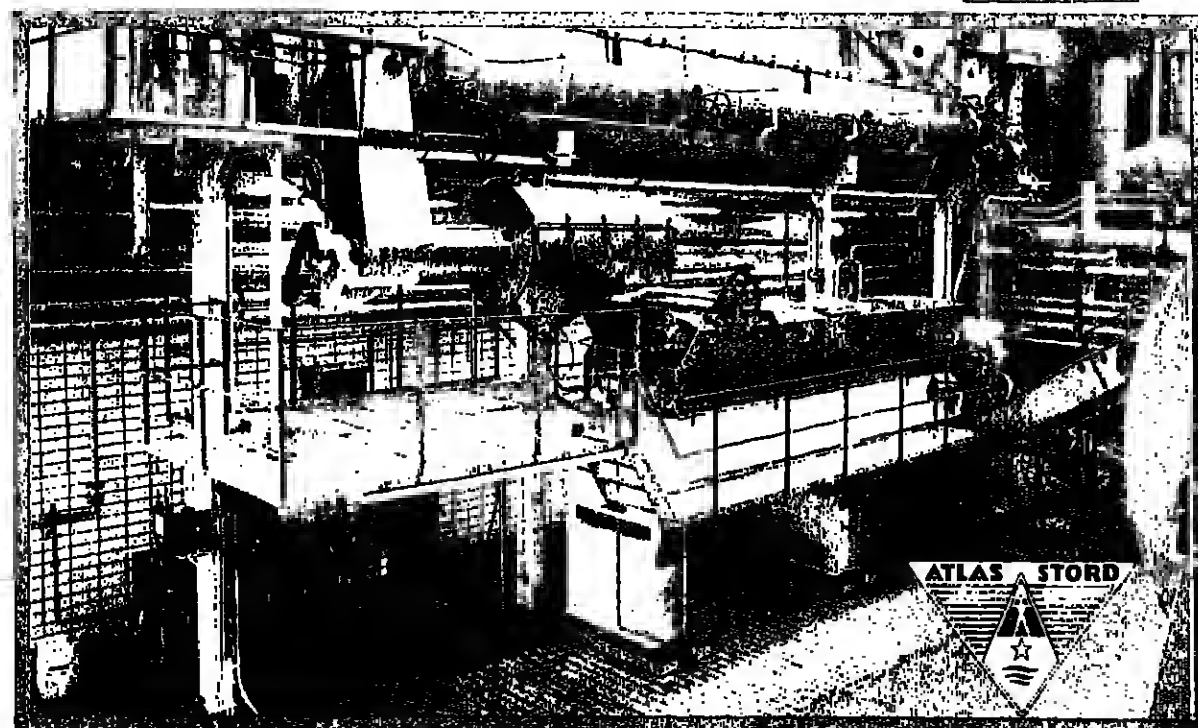
The Howth-based trawler "Adrienne." She is the first Irish fishing boat to have a Newage H2P two-pitch propeller system.

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THE fuel-saving performances of a new boat called the *Adrienne* has become the talk of fishermen along the east coast of Ireland. The 65ft. (19.8 metre) long, transom-stern trawler was designed and built at Malahide Shipyard for Skipper Gerry Moore. She operates from Howth, Co. Dublin.

A feature of the boat attracting attention is that she is the first Irish fishing vessel equipped with the hydraulically actuated two-pitch propeller system developed by the Marine Propulsion Division of Newage Engineers Ltd. of England.

Controlled from a simple switch panel in the wheel-house, the H2P system gives Skipper Moore two pre-set blade pitches matched to the characteristics of his boat.

For economical free running to the fishing grounds, the three-blade manganese bronze propeller is set to coarse pitch. For trawling, heavy weather sailing and fish search, a flick of the switch puts the blade in fine pitch.

Before the *Adrienne* began fishing, Wilf Bellow of Newage forecast that, compared to similar boats with conventional fixed-pitch propellers, her H2P system would give "substantial fuel savings."

This was evident after the first week.

In 71 hours (with 65 hours under trawling conditions) towing a No. 402 three-hurdle net) total fuel consumed was between 580 and 600 gallons.

### Much less

"This," says Newage, "is some 40 per cent less than the 1,000 gallon fuel usage reckoned for a similar boat with fixed propeller operating under the same conditions."

According to Skipper Moore, the boat's engine easily achieved full continuous RPM in both the free running and trawling modes. The engine is a Kelvin TASC8 developing 415 shp at 1200 rpm and turning the Newage propeller through a Reintjes WAV400 reverse reduction gearbox of 4:1 reduction ratio.

The gearbox, factory modified by Reintjes, was supplied with the Newage two-pitch system which consists of an actuator, a hollow tail-shaft through which passes the blade adjustment rod, and a 64-inch three-blade propeller.

Simplicity of the system's operation from the remote

Ireland's first boat to have Newage propeller system

control panel in the wheel-house is matched by simplicity of installation, which was carried out by the local Kelvin agents, Inchicore Engineering of Dublin.

"We aimed to design a system which could be fitted with ease anywhere in the world in a competent yard," said Mr. Bellow. "This particular installation has proved the point as far as we are concerned, since it was fitted without technical assistance from our engineers."

Newage says that another attraction of the H2P for the skipper is that in the event of hydraulic failure, the propeller blades automatically return to the coarse pitch position. He will not be left powerless at sea.

### Confident

The *Adrienne* is named after Skipper Moore's 12-year-old daughter, and was designed by the Malahide yard's director, Miles J. Stapleton. Tom Stafford, chairman of the yard, is confident that the vessel will be a



Fuel-saving at the flick of a switch — skipper Gerry Moore (left) with Wilf Bellow of Newage at the propeller control panel of his new boat.

down further keels for trawlers similar to this vessel.

Constructed of larch planking on oak framing, with steel deck stringers and deck beams with steel watertight bulkheads, the trawler has a waterline length of 60ft., length b.o. of 56ft. 3in., breadth of 22ft. 6in., depth moulded of 11ft. 1in., and draft of 10ft.

### Trawl winch

Auxiliary engine is a sea-water cooled Kelvin P4 developing 19 bhp at 1500 rpm. The *Adrienne* is equipped with a Mastra two-drum 6-ton hydraulic winch, with Northern Tool and Gear step-up box, and a free standing power block Atlas crane with Technor power sheave.

The steering system is a power-assisted hydraulic Tenford type 74 with jury rig. Electronic and other wheel-house equipment includes

Atlas Model 720SP fish finder, Atlas model 240 echograph, Atlas radar 4101, Saxon Warrior 200 watt SSB radio telephone, Sator RT144 VHF radio telephone, a Robertson AP30 autopilot, Amplitan talk-back system, and a Lilley and Gillie overhead compass.

Below deck accommodation, from bow, is forepeak, fishroom (25 tons capacity), engine room and crew sleeping quarters.

Central heating is provided by a Kemsale 60,000 btu boiler, with radiators in crew's sleeping cabin, galley, mess and wheelhouse.

During her first few weeks at sea, Skipper Moore took the *Adrienne* and her four-man crew — including his two brothers — to join the other boats white fishing in the Irish Sea. Later in the year he aims to "pair up" with another vessel for the herring fishing.

## Prop with built-in safety feature

The "Adrienne's" 64-inch Newage three-blade manganese bronze propeller. In the event of hydraulic failure the blades automatically return to the coarse-pitch position, so the vessel will not be left powerless at sea. The easily installed system can be fitted with ease at any competent yard anywhere in the world.



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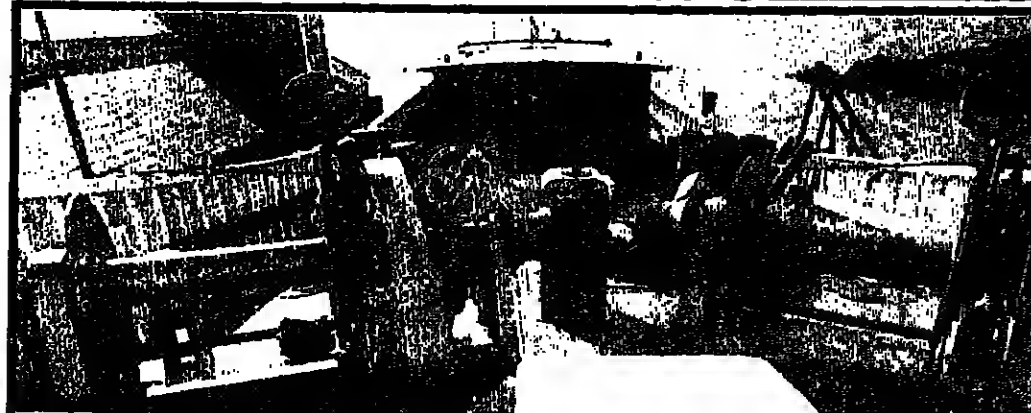


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BOATS & BUILDERS — turn to page 40



## BOATS &amp; BUILDERS



Aboard the 86-footer showing the split winches

## Timber giant

THE largest ever wooden fishing boat from an Irish builder is nearing completion in the BIM boatyard at Baltimore. The 86ft. (26.2 metre) long vessel is for Skipper Charlie Gallagher of Killybegs.

She will be powered by a Caterpillar diesel of 880 hp, backed up by a Gardner diesel driving the auxiliaries. Deck machinery will include a 10-ton

split-trawl winch by the French firm Bopp. This is mounted right forward. Aft there will be a three-ton Lössle suspended power block and a new drum by Bopp.

The boat is to have a chilling system to extend the availability of fish hold ice on long trips. The Promac chilling plant is electrically driven.

She will have an aft wheelhouse of aluminium alloy and a main deckhouse of steel. The forward wheelhouse is also aluminium.

Steel is used extensively in the hull of this wooden vessel. This reflects the problem of using timber economically and also, in some cases, of obtaining suitable wood.

# Scramble to complete BC drum seiner twins

TWO 23.8 metre-long sister vessels were rushed to completion by Allied Shipbuilders of North Vancouver so that they could take part in the short but intensive British Columbia roe herring fishery.

The drum seiner *Dual Venture*, owned by Nick Brajich, and *C Venture*, owned by Marijo Carr, were designed by Cleaver & Walkingshaw of Vancouver. They incorporate many of the latest features for boats in the BC salmon and herring fisheries.

Each is of welded steel with a waterline length of 21.3m., beam of 6.1m., and moulded depth of 4.8m.

The main engine is a Caterpillar 3412 diesel developing 525 bhp at 1800 rpm, driving through 4.2:1 reduction gear and clutch to power two Vickers double hydraulic pumps. The auxiliary engine is a Detroit Diesel 4-71.

The hull is sub-divided into forepeak, engine room and two holds. The shaft tunnel sub-divides the holds to create four watertight and insulated compartments which can be flooded with slash ice.

Accommodation for a crew of nine is above the main deck. Supplied by Hytec Equipment, the gear-handling machinery includes a purse seine winch, net drum, spooling gear and guide rollers.

## Wheelhouse

The wheelhouse is equipped with Wagner T-12B automatic steering gear with autopilot and B2V power steering, Oki NX7 and NX3 radars, Wesmar SS160 sonar, Com Dev CDM113 echo sounder, Eckolite 32V herring recorder and Intech SSB radio.

Although the boats are fitted with drum purse seine gear, they can be refitted for other types of fishing.

Another new herring seiner is the 22.8m. (75ft.) long *Pachena No. 1*, built for Seaboard Trading Company by BC Marine Shipbuilders of Vancouver.

She was also designed by Cleaver & Walkingshaw and has a beam of 5.3m.

Her main engine is a Cummins model KTA1350M diesel engine developing 470 hp at 1800 rpm and turning a K-pump three-bladed fixed propeller in a nozzle through a Twin Disc MG-521 4.0:1 reduction gear. The auxiliary engine is a 4-71 Detroit diesel driving hydraulic pumps.

## DANISH PATROL SHIP ON SPEC

THE DANISH yard of Frederikshavn Verft has started to build the first of the British-designed *Osprey* class of patrol vessel. There is no buyer at present, but such is the yard's confidence in the design that it decided to go ahead in anticipation of an order from the Danish Government.

The *Osprey* will fill the gap between the fast patrol vessels recently completed by Frederikshavn Verft and larger cruising patrol craft.

The 165ft. long *Osprey* marks a new departure in patrol boat design.

With its wide beam it provides a stable platform either at speed or at rest, and it is designed to provide a relatively cheap answer to the problems of patrolling wider limits.

## Yard plan

SRI LANKA is pressing ahead with the huge Mahaweli Development Scheme in the South Eastern Province. It includes the setting up of a yard for building small fishing vessels and the dredging of the Mahaweli Bay to raise freshwater fish.

While the main use of Mahaweli waters is for agriculture and hydro-electric power, the government has decided that they can also be well used for aquaculture.

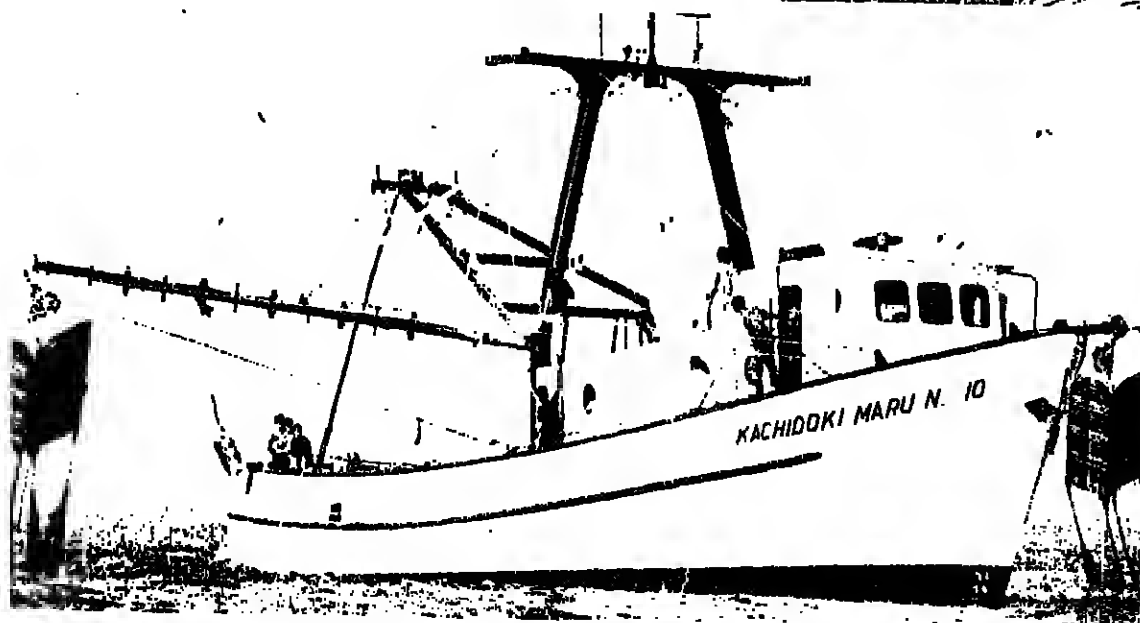
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The 74ft. Scottish wooden vessel "Devotion."

## Dutch yard build India boats

FISHING vessels under construction for export in Netherlands yards include two trawlers 23.5 metres long for an Indian company. These are being built by W. Visser & Zoon of Den Helder and each will be powered by a Caterpillar engine.

Scheepswerk Hakvoort of Monnickendam is another export builder, with three boats of 87ft. (26.5 metres) for Irish owners. Two of these boats will be powered by Starb Worksport engines of 850 hp. The third is to be powered by an 850 hp Caterpillar engine.

## Mussel cutters

A Lister Blackstone engine of 1,000 hp will go into a 26 metre long vessel building for export at the Zaandam yard of Vrijthof Nieuwboer.

This yard is also building two 30 metre long mussel cutters for Dutch owners. These 200-ton vessels will be powered by Cummins engines of 365 hp.

## SUBSIDY BOOST

THE Argentine government is planning to subsidise fishing vessel builders by providing 15 per cent of construction cost. This is part of a larger plan to provide special credit to stimulate the building of a large, modern coastal fishing fleet.

# UK FIRST FOR NEW JAPANESE SONAR

THE NEW 74ft. (22.6 metre) long Scottish wooden trawler *Devotion* is the first in Britain to have the Japanese Furuno model FH-103 sonar.

Supplied by Redifon Telecommunications, this solid-state set has four sounding ranges from 0-200 metres up to 0-1600 metres. Transmitter frequency is 40 kHz. The transducer is continuously tiltable from 5 deg. up to 90 deg. down.

The boat also carries the new ES7 Sonar Vision which works with the FH-103 and displays echoes on a seven-inch CRT screen.

Built by James Noble

(Fraserburgh) Ltd. for a partnership headed by brothers John and James Hay Strachan of Peterhead, the *Devotion* is fitted for bottom or mid-water trawling. She will also take part in the North Sea shrimp fishery.

The main engine is a Kelvin TBSC8 diesel developing 500 hp at 1350 rpm and driving a fixed-pitch propeller through a Reintjes 4:1 reduction gearbox.

Inside the "Devotion's" wheelhouse, showing the Furuno FH-103 sonar (lower right), ES7 Sonar Vision (centre) and Furuno echo sounders (left).



## RSW in two trawlers

MERSEYSIDE yard of McTay Marine Ltd. (see FNI, August 1977) has received an order from Richard Irvin & Sons of Aberdeen and North Shields for two 30 metre (98.5ft.) steel-hull stern trawlers. The vessels are due for delivery in the first half of 1979.

## Twin Cats.

GRIMSBY inshore trawler owner Tom Walkley has ordered a 59ft. (18 metre) Makki-class vessel from South Ocean Services (Commercial Craft) Ltd of Portsmouth, England.

Designed by Cornish naval architect Denis Swire, the new boat follows the *Lia G* built last year for Brixham.

Of steel double chine construction with soft nose stem and round transom quarters, the trawler will be powered by twin Caterpillar 3306TA engines of 235 hp turning twin screws through 3.8:1 reduction gears.

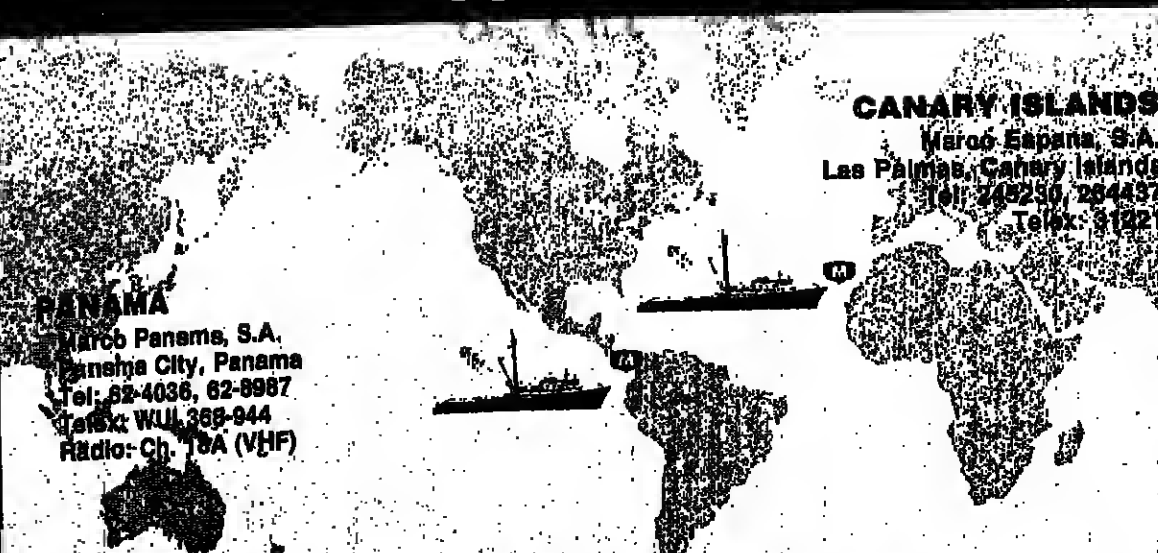
They will be capable of bottom and pelagic trawling and are to be fitted with a Norwegian Kvaerner refrigerated seawater system and Brunvoll bow thrusters.

The engine room will be forward and the main power unit will be a Norwegian Wichmann 4AXA diesel developing 1,141 hp at 375 rpm. Nozzle and controllable pitch propeller will also be supplied by Wichmann.

All hydraulically driven gear handling machinery will be from Karmoy of Norway. It will include split winch, net drum, gilson winch and submersible fish pump.

The vessels will each have accommodation for a crew of ten.

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## BOATS &amp; BUILDERS

## Desco starts to build crabbers

FOUR Cummins-powered GRP boats have been delivered by US series builder Desco Marine to its big new outlet on the Pacific coast. Although this yard in St. Augustine, Florida, has supplied boats to many countries in addition to the USA, almost all its 2,000 vessels have been shrimpers.

But several of those ordered recently have been for other fisheries. The demand from the west coast has included combination shrimpers and trawlers, and now crab boats.

Three of the vessels are built on Desco standard 68 ft (20.7 metre) hulls for the yard's wood and GRP design but the upperworks have been varied for the new fishing requirements.

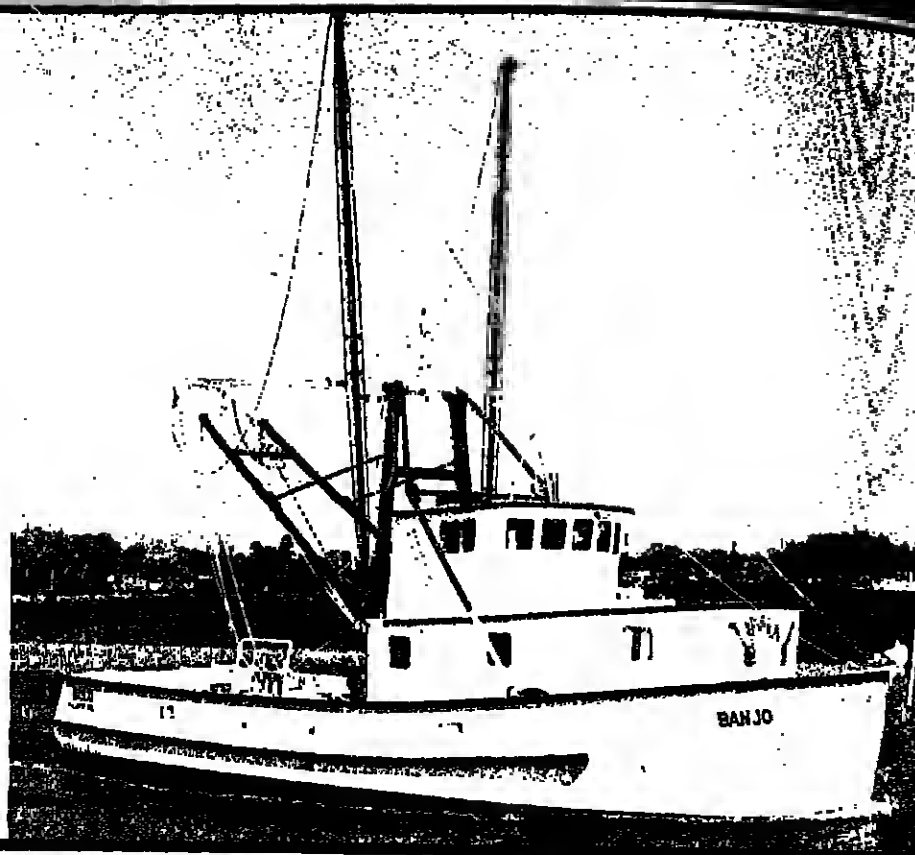
The *Banjo*, *Jo Mark* and *Mildred C*

are all crabbers and all for owners in Newport, Oregon. Each is powered by a Cummins KT1150M diesel engine developing 365 hp and turning a Colombian fixed pitch 60 by 40 inch propeller through a Twin Disc 6:1 gearbox.

In the *Banjo* and *Jo Mark*, the catch is cooled by a Hill combination refrigerator-freezer but the *Mildred C* has a Sears refrigerator. Each boat has a hold capacity of 2090 cu. ft.

Desco's fourth boat for the west coast in this recent batch is based on the 75 ft all-GRP design and is fitted out mainly for shrimping. The *Olympic* is for an owner in Astoria, Oregon.

Like the other two, she is powered by a Cummins 365 hp engine.



## India yards fall short of target

INDIA will have to face the cost of more trawler imports than originally planned, if her industry is to have the size of fleet to take full advantage of deep-sea resources.

The aim over the period 1977/78 was for the introduction of some 100 vessels (most of them standard double rig trawlers for the important shrimping industry) with 60 imported and 40 from local yards. But it became apparent as 1977 progressed that the local-yard share could not be met and so the import share was raised to 70.

Now a much larger number of import applications will have to be approved if the target, from April 1979, of some 200 trawlers is to be reached.

Unfortunately for Indian owners, the programme of importing deep-sea trawlers has already experienced considerable delays.

The need for trawlers for deep-sea fishing in the sixth five-year plan (April 1978 to March 1983) is estimated at about 300 vessels.

But the government's proposals to assist local yards towards a substantial trawler building capability have still to reach take-off stage.

## Norway team

Recently a team from Norway visited Indian yards and then prepared a detailed scheme for developing two of them.

It is believed that the report says a state yard in Goa on the west coast and the dockyard at Rajabagan on the east coast are capable of building trawlers after being provided with better facilities.

India has also been visited by an industrial delegation from Spain which has offered to collaborate in the building of modern fishing vessels.

India needs special types of vessels to stand up to turbulent seas often encountered in the Bay of Bengal and the Andaman Sea. FN's correspondent reports that some of the vessels imported have not met requirements for fishing in this area.

## C.P. PROP FROM BOMBAY

THE FIRST controllable pitch propeller made in India has been fitted to the *Matsya Jyoti*, a 45 ft long trawler owned by the Department of Fisheries in Gujarat state.

The maker is Geeta Engineering Works Private Ltd., of Bombay, which earlier pioneered the local manufacture of hydraulic steering gear and hydraulic trawl winches.

## Trawlers

According to J. K. Nangle, technical director of the firm, the new propeller is suitable for trawlers, tugs and ferries.

The *Matsya Jyoti* works out of Veraval on the Gulf of Kutch. She has an 88 hp engine made by Ashok Leyland of Madras. The more efficient use of power through the propeller enables her to increase the size of her net from 22 metres to 28 m.

The Geeta propellers are being made in a factory being set up in the town of Rajabagan, near Mumbai.

## SKIPPER REID'S COOL 'CONQUEST'

WITH COD and other popular species fetching remarkably high prices at British port auctions, there is every incentive for owners to invest in methods of bringing in top quality fish.

Dennis Reid of Buckie is a skipper who helped pioneer fishroom cooling plants in Scottish seine net boats, and in his new vessel, the *Conquest*, he has a system that has aroused considerable interest among local fishermen. It may also have applications in several other quality food fisheries.

Skipper Reid had a cooling plant put into his previous boat (also called the *Conquest*) in 1972. This was made by the Aberdeen-based firm of Currie and Thomson (Engineers) Ltd. Skipper Reid was sufficiently impressed by its performance to ask the same supplier to provide a cooling system for his new 79 ft (24.1 metre) wooden boat from the Buckie yard of George Thomson and Son.

Her fishroom is 35 ft (10.7 m) long and is estimated to have a capacity for 1,000 boxes. It is insulated with polystyrene lined with timber and faced with aluminium sheet. There are two latches.

Six cooling evaporators are mounted on the fishroom deckhead. Normally, only the four on the after part will be used. In the fishroom, the catch can be held at just above freezing point.

Extra boxes can be stowed in the fore part of the room during heavy fishing. The two extra cooling evaporators can then be brought into use by means of a solenoid switch in the wheelhouse.

The 5 hp compressor unit for the cooling plant is driven from the 110-volt electricity supply. The plant is fully automatic with a Cambridge Instrument alarm system which incorporates thermostat control of the fish room temperature.

Designed by G. L. Watson & Co., the *Conquest* has a cruiser stern and a beam of 23 ft. She is presently equipped for seine netting but can be adapted for single or two-haul trawling.

## Caterpillar engine

Her main engine is a Caterpillar D379 diesel developing 565 hp at 1,225 rpm and turning a fixed pitch propeller through a Caterpillar gearbox with a 4:1 reduction ratio.

Power for the Dowty variable delivery hydraulic pump for the boat's winch comes from the extension shaft at the forward end of the engine through a flexible coupling and a Sutherland step-up gearbox. The hydraulic pump unit for the power block, rope reels and cargo winch is also driven

## Chilled hold means quality fish for new Scottish seiner

through the Sutherland gearbox.

The boat's D. F. Sutherland combination seine and trawl winch is fitted below the whale buck with its trawl drums forward at the after side of the seine bunnels. The other gear-handling machinery is from the Lössle Hydraulic Company and consists of a two-drum set of seine rope reels, a 24 in. power block and a small cargo winch.

Fish finding aids in the wheelhouse include Wesmar SS220 scanning sonar, Kelvin Hughes MS44 echo sounder with BLI scale expansion unit, and Elac LAZ61 Fischlupe.

Decca supplied the Saitor radars T116 R105, 400W SSB, RT144 and RT143, and R114/M waterkeeping receiver. For navigation, the *Conquest* has Decca RM914C Clearscan radar.

Tenford electro-hydraulic steering gear is coupled to the Decca 450 automatic pilot.

## Finnoy foot in Scotland

THE 64 ft Buckie-based seine netter *Venture* has been fitted with the first Norwegian-made Finnoy controllable pitch propeller to be installed on a Scottish boat. She has also been re-engined with a Kelvin T458 diesel developing 375 hp at 1,200 rpm and driving the propeller through a Finnoy G30 3.05 to 1 gearbox.

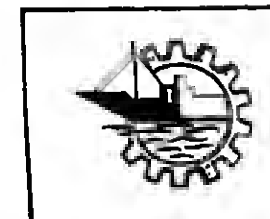
Finnoy has already supplied its c.p. propellers and gearboxes to Kelvin-powered boats in the Norwegian fleet.

The *Venture* is among the smaller Scottish boats to have a c.p. propeller. She was built by James Buckie Shipyard in 1971 for her owners Francis and John Lawrence. The re-engining was done by Herd and Mackenzie of Buckie who also fabricated and installed the boat's new deck shelter.



Scotland's new 79 ft seine netter 'Conquest,' fitted with a special fishroom cooling system, has aroused considerable interest among fishermen in and around her port of Buckie.

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Uncovered: 720 m<sup>2</sup>.

Shipway No 1  
Uncovered:  
Length: 35 m.  
Breadth: 9 m.  
Approx. dead weight: 350 T.

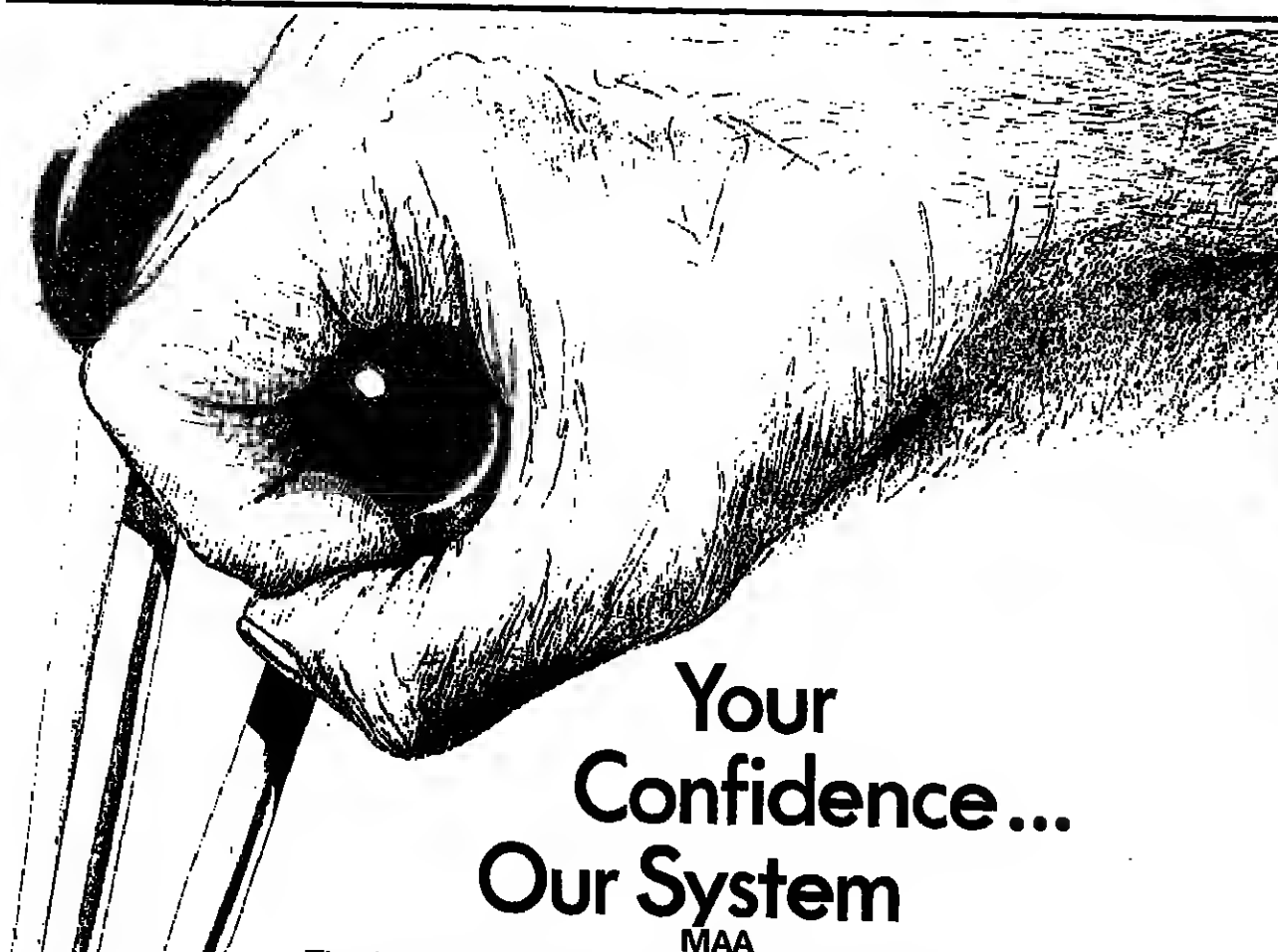
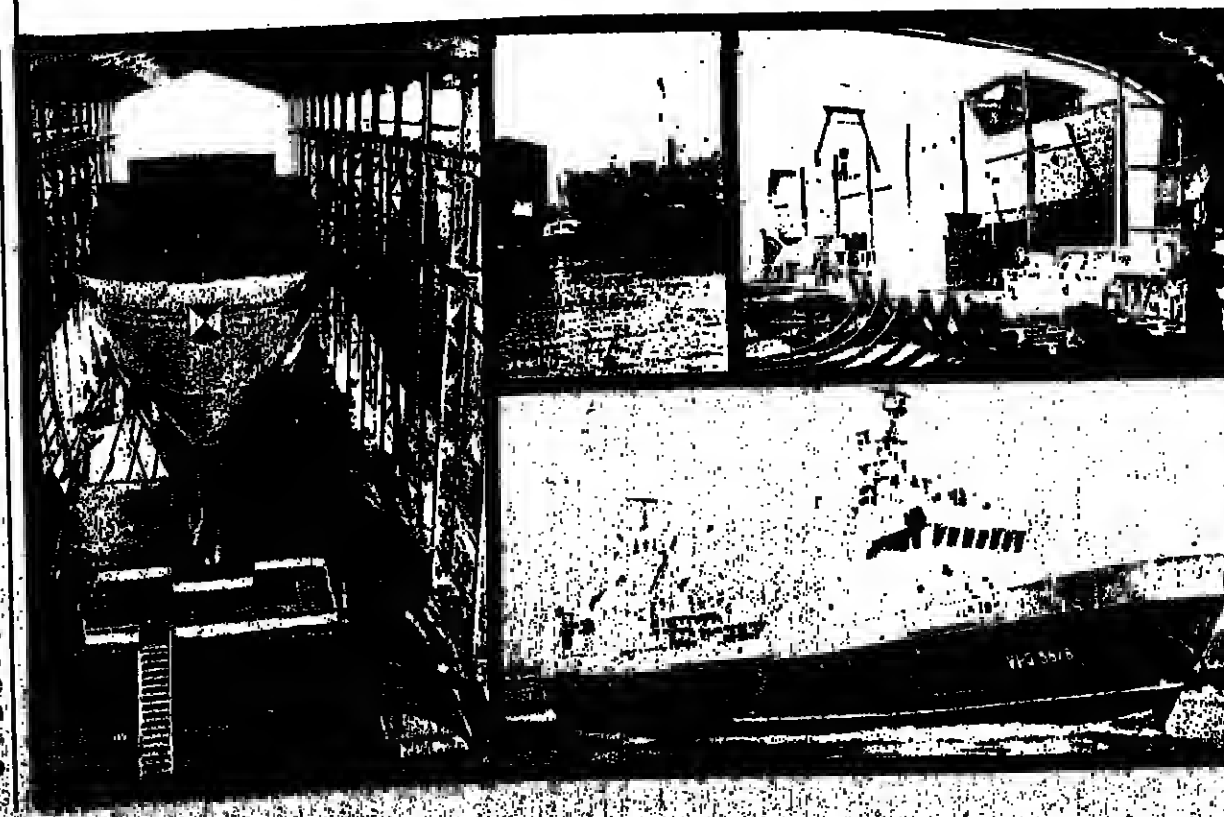
Shipway No 2  
Covered:  
Length: 60 m.  
Net breadth: 19,70 m.  
Approx. dead weight: 7,000 T.

Slipway:  
Length: 70 m.  
Breadth: 13 m.  
Lifting Capacity: 1,000 T.  
Dock Cranes:  
2 cranes with capacity up to 12.5 T.  
Cranes in Shipway No 2:  
2 bridge cranes of 20 T.  
With auxiliary hook of 5 T.  
Bridge Cranes in Prefabrication:  
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Bridge Cranes in Shipway No 1:  
2 cranes of 10 T.  
Bridge Cranes in Pietar's Shop:  
2 cranes of 3 T.

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513 - CIEISA CUATRO 280  
514 - CIEISA CINCO 280  
515 - TARPON 280  
524 - MARRAKECH 1,257

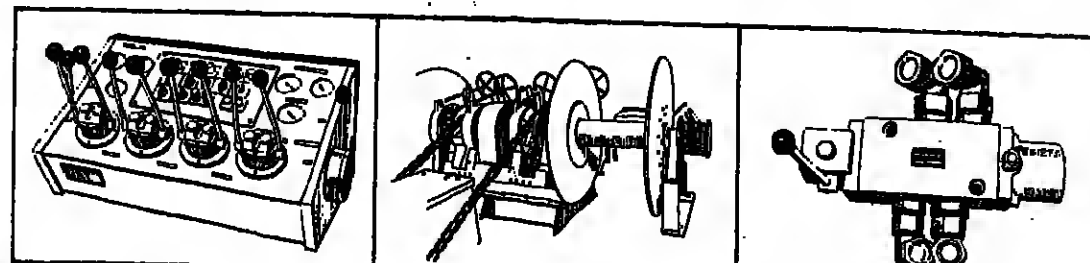
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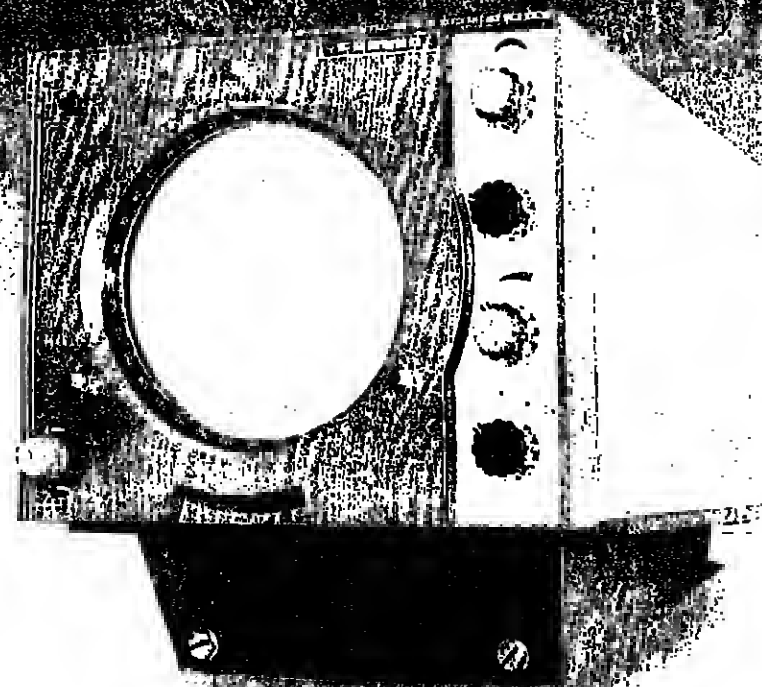


the  
books  
page

# FISH UTILISATION

A new-look FAO guide to products and marketing

## At Last, Commercial Stamina In A Small Radar Furuno FR-160



### Furuno's Low-Cost, High-Performance 16-Mile Marine Radar

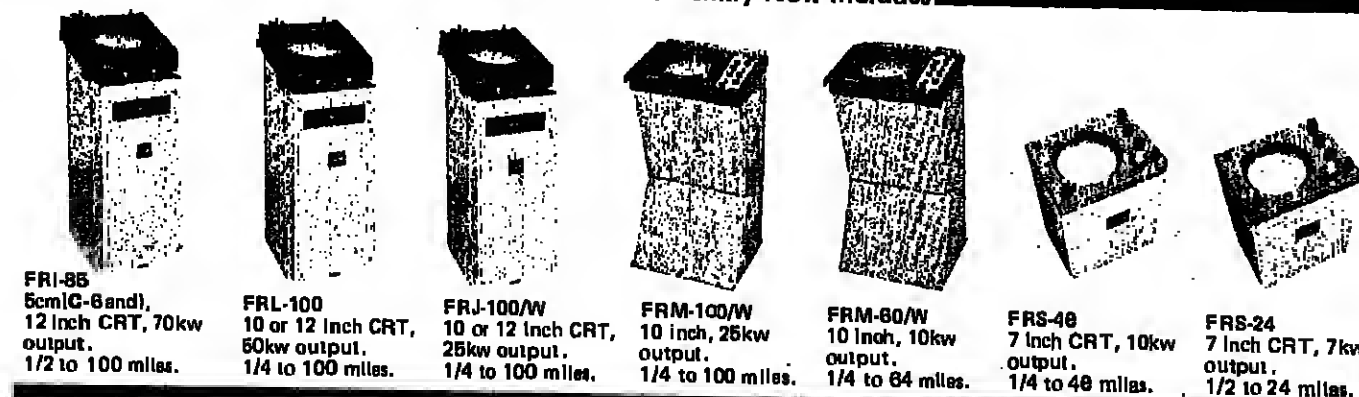
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FR-100/W 10 or 12 inch CRT, 25kw output, 1/4 to 100 miles.  
FRM-100/W 10 inch, 25kw output, 1/4 to 100 miles.  
FRM-80/W 10 inch, 10kw output, 1/4 to 84 miles.  
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OF THE total world fish catch of 73.5 million metric tons, 50.1 million tons were used for direct human consumption. Fish meal plants took 21.6 million tons, and one million tons went to other uses.

These and many other figures showing how the world catch is used and traded are given in Vol.43 of the FAO Yearbook of Fishery Statistics.

Concentrating on the commodities aspect of world fisheries, it is now in the same compact form as its companion Volume 42 (see *FN*, March 1978).

#### Catch use

An introductory table reveals broadly how the catch was used.

The proportions for food and for reduction changed hardly at all in the three years 1974, 1975 and 1976.

About 70 per cent of the catch was consumed fresh, frozen, cured or canned. Of this share in 1976, freezing took 26.2 per cent, marketing fresh 38.3 per cent, curing 16.3 per cent and canning 16.3 per cent.

An improvement in the Peru anchovy catch contributed to the rise in the amount of fish used for reduction. Larger catches of capelin and Norway and Iceland, and increases in industrial fishing in several of the smaller meat producing countries also helped.

#### Mexico meal

Mexico's catch for meal rose from 120,500 tons in 1975 to 192,700 tons in 1976, and the catch for this purpose in South Korea jumped from 55,800 to 136,000 tons.

In the United Kingdom, the rising mackerel catch in 1976 helped push meal plant fish from 132,800 to 178,000 tons. But Canada sharply reversed the trend by diverting a very much larger share of her herring to direct food use.

#### Six years

Six or seven years ago Canada used nearly a quarter of her 1.2 million ton catch for reduction. Her total catch in 1976 was down to 1.1 million and only 70,000 tons went for meal.

In its mass of tables over 336 pages, the FAO Yearbook shows both production and trade.

There are guests only for some large fishery nations such as Chile, but the countries providing details to the FAO statistics account for 88 per cent of the 1976 catch. Of this total (64.74 m. tons), 33 per cent or 21.59 m. tons was traded internationally.

**BOOKS**  
turn to page 47

ANOTHER valuable fishing manual is coming from Fishing News Books Ltd. on behalf of the FAO Fisheries Technology Service. It is titled *Training Fishermen at Sea* and it joins previous FAO manuals such as *Netting Materials for Fishing Gear*, *Mending of Fishing Nets*, and *Fishing with Light*.

The introduction explains that the purpose of the work is to provide a guide for training fishermen on training vessels of from 100 to 200 gross tons (excluding engine room personnel).

The course envisaged is for one year, including instruction at sea and on shore for a group of ten to 20 trainees preferably divided into three groups — one in training and the others on shore learning navigation or being trained in gear and methods.

Very well compiled in logical sequence, the manual is brightened by a number of illustrations drawn in humorous vein. The text is credited to Birgit Hermanson, who is described as an expatriate FAO expert serving as a masterfisherman/instructor on a fishery training project.

Fourteen chapters cover the course from the training vessel, crew requirements, training programme, basic meteorology, seamanship, navigation, electronic equipment, fishing gear and methods, fish handling on board, right up to safety measures, fishing log books, economics of fishing operations, vessel maintenance and finishing with the performance record of trainees.

#### Fill-in charts

To ensure this latter being an record, a number of detailed charts are included in the book to be filled in by or for each trainee covering his performance at varied stages.

This manual is an admirable conception and service. Properly applied as intended, it should materially expand the fishery service of all those using it.

It will pave the way for attainment of mate or skipper rank by trainees. The text is simple and straightforward and the charts give every trainee a detailed record of his performance. Price of this admirable manual of 96 pages is £3.50.

In an American journal dealing with the sea, I found mention of a book just published on seaweeds and their use as vegetables. The book illustrated and listed some 50 different varieties of seaweed, gave methods of treatment and cooking to yield an assortment of so-called "attractive menus."

When I mentioned this to a lady visitor she volunteered that she had recently visited the seashore near her home to gather sea spinach, described by her as being in leaf very similar to

the ordinary spinach and tasting exactly the same when hoiled and eaten with butter. But she then surprised me by adding that on chatting with another seashore wanderer — a man she found sitting on an upturned bucket for a rest — she had learned from him that he was a professional gatherer of liver for the making of liver bread and that he sometimes earned as much as £125 a week.

#### In Wales

Laver bread is popular in Wales and some other parts of Britain and if rewards in that range are in any way common there might well be a rush to the seashore by some city unemployed. I am not able to guarantee the figure or indicate the market. But I do know there is a commercial venture and a successful one in the gathering of our coastal seaweed and its processing into both powder and liquid form I use it regularly as fertiliser in my vegetable growing. But where is the cookery enthusiast who will write a book about the seaweeds of Britain or Europe for the delectation of our gourmets?

One of the most entertaining publications issued by HM Stationery Office (49 High Holborn, London) is a compact quarterly under the title *The Marine Observer's Log*. It is in content based on factual observations made by experienced ship's officers and others contributed on a volunteer basis.

These observations cover a wide range of subjects such as of a large vessel on two separate occasions inhaling a whale on her bow, or of unusual weather conditions, freak waves, strange forms of marine life, phantom suns due to atmospheric conditions, undersea volcanoes that frequent in European waters, ice conditions and so on.

#### Conference

Everything in this journal is authoritative and based on carefully recorded facts and gives four times a year a remarkable miscellany of seafarers' sightings. Many fishermen will appreciate it. Subscription rate is £5.44 a year and one enthusiast tells me, "well worth the money."

The final session (hoped by some) of the United Nations Conference on the Law of the Sea is now in progress in Geneva — began March, due to end May. This marathon exercise begun four years ago and has occupied thousands of scientists, diplomats and lawyers in half-a-dozen protracted sessions.

During those four years the world has seen the greatest land and sea grab in history — made by the coastal states extending — in the end almost by common consent — their jurisdiction some 200 miles from their shores; thus the world's sea map so extended and coloured over that area is completely unrecognisable.

In the decades since World War II, new nations have burgeoned and through the collective strength of United Nations decisions are in process of laying down a new order in legal, political and economic fields — all being done on the basis of one nation's vote. When the United Nations came into being there were 58 individual nations. At the end of 1977 there were 145 and the Third World vote had swollen to 112.

The detailed single draft Convention aimed to power all fields of fishing, aquaculture, small scale fishing, and fish processing.

now runs to hundreds of clauses and ratification will require a two-thirds vote of the total United Nations membership.

In a new journal first published in January this year — *Ocean World* — from Washington USA, there is given the most detailed analysis of the draft Convention and its proposals and prospects that I have seen.

This journal defines its aim as dealing with all aspects of the oceans which cover approximately 70 per cent of the earth's surface. Its first number is vastly interesting. In addition to the major article on the Law of the Sea Conference, it gives fascinating insight into investigations in progress in the USA on the possibility of mining those mineral nodules lying so plentifully in the ocean depths.

So far as the ordinary fishermen of the sea are concerned, the main practical effects of the new Law of the Sea are already being observed — many individual nations have extended their territorial boundaries 200 miles in relation to fish. What may finally wreck agreement on a single detailed international agreement covering all aspects of usage and rights is just this dispute about sharing that still to be acquired mineral wealth.

#### US interests

On November 1, 1967, the Ambassador for Malta at the UN, Arvid Pardo, first claimed that this wealth lying on the floor of the sea should be regarded as under international jurisdiction for use as the common heritage of mankind with the income from its development specifically assigned for the economic development of the poor countries. And his estimate was that this income would amount to six billion dollars a year by the year 1975. Alas for his hopes.

But the idea has persisted and the current draft Convention does include provision for the creation of a new Sea Bed Authority under the United Nations to undertake actual mining activities either directly or in partnership with others. Long negotiations have occurred. I have not space to discuss them, but cite the fact as being one possible main issue which may (in the view of *Ocean World*) impact final agreement.

But before leaving the point, let me just say that for three years past USA interests have been exploring the potential of mining the sea bed areas around Hawaii. The National Oceanic and Atmospheric Administration in co-operation with some universities and other institutions has been endeavouring with the use of two research vessels to compile data of value. Conclusions? That by 1985 from two to four mining ships would be operating each recovering from 5,000 to 10,000 tons of nodules a day for 300 days a year! Yes, that's what the article said. I read it four times. But the article said, I read it four times. But the message as meaning "per year working 300 days a year."

Even so, one wonders whether such a forecast will prove any better than that made for 1975's out-turn. More especially as current land-mined copper and nickel are in full supply and available at relatively low prices. This must seriously discount that estimate! But the illusion of future riches remains like the pot of gold at the end of the rainbow. So the final vote out-turn of the May talks is still in question and thereafter must come the full United Nations decision.

## walkabout talkabout

with Arthur J Heighway



## Chemical use at sea

THE MISUSE of chemicals at sea can lead to serious damage, loss of efficiency and, loss of life.

But chemicals play a vital part in modern vessel operation, so knowledge about them and their uses is essential.

The aim of a new book, called *Chemicals in Ships*, is to provide a practical guide to chemical handling at sea.

It is published by The Institute of Marine Engineers and is available from Marine Media Management, 76 Mark Lane, London EC3R 7JN, England, UK. Price £12.

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# FRIONOR

# STRAIGHT INTO THE CAN!

Dr. William McNeil, of Oregon AquaFoods, The Pacific Ocean feeds his salmon.



WILL IT be possible one day to so control the behaviour of fish in the sea that they will be herded, directed to catcher boats — or even directed into a processing factory?

Many people working on the ranching of Pacific salmon see it as a distinct possibility with these anadromous fish. Salmon are particularly amenable to various forms of control because of their habit of spawning in freshwater and growing in the sea. They can be reared by man initially in an environment that is largely controllable — freshwater hatchery tanks, ponds or raceways.

Later, as they grow, they can be released beyond his control, but they then come back to where they started.

As we have reported before in *FNI* salmon ranching is becoming increasingly well established. It is already bringing huge returns to Japanese hatchery projects in Hokkaido and north Honshu.

Writing in our associated journal *Fish Farming International*, Dr. Colin Nash, Director of Research of the Oceanic Institute in Hawaii, reported that the work in Japan is based on the chum (*Oncorhynchus keta*) and pink salmon (*O. gorbuscha*). The system, he says, is a very good one, operated by the National Salmon Hatchery Service. It is credited with almost the entire pink salmon coastal fishery, and much of the nearby high seas fishery.

"From the Hokkaido rivers, together with a number in Honshu," Dr. Nash continues, "the annual release of over 1,000 million 100 mixed species provides an annual return to the coastal fishery of 10 million fish. Of these, about 80 per cent are caught at any of the 100 or more trapping sites."

### Close harmony

These sites are run by local co-operatives which work in close harmony with the National Salmon Hatchery Service, which, in Hokkaido alone has over 45 hatcheries.

Across the Pacific, the very large salmon catching fleets of Washington state in the USA, in British Columbia, and in Alaska will long block attempts to re-introduce the efficient trapping system.

There, the work is directed towards enhancing the Pacific salmon runs, using hatcheries, but also resorting to other techniques such as clearing channels and removing obstructions to the flow of natural salmon streams.

One day, perhaps, some of the salmon may

## Fish can be 'herded' into factories, claims Norwegian researcher

"swim into the can" in factories which invest their "ranching" funds in a hatchery and run catcher boats as they grow and return, but it is expected that enough will come through to make the project worthwhile.

But in a state such as Washington, a further obstacle is the law (which may soon be repealed, as it has in Oregon and Alaska), preventing private ownership of hatcheries.

South in Oregon, private ownership has moved up a big step with the conversion of the project of Oregon Aqua Foods from mixed farming and ranching to ranching only.

This company, a pioneer in pan-size salmon production in the USA, was bought a few years ago by the timber giant, the Weyerhaeuser Company.

Salmon specialist Dr. William McNeil was recruited from the US National Marine Fisheries Service in Alaska to head the expansion. It involves an investment of more than a million dollars, will use heated water from a company pulp and paper plant in the hatchery stage, and is planned to turn out 80 million salmon smolts a year by the early 1980s.

These smolts will be introduced into the sea at a release and capture site in Newport. No doubt, many of them will be harvested by catcher boats as they grow and return, but it is expected that enough will come through to make the project worthwhile.

Dr. McNeil calculates that an average 0.5 per cent return will be enough to make the firm profitable, but thinks an average of 1.5 per cent could be possible.

Where the fish do not grow and move conveniently, ocean ranching must remain a remote dream for the future. But it does offer enormous long-term prospects, eventually, for areas such as the Seto Inland Sea in Japan (where stocking work has been going on for years), for the Baltic Sea and even the rich North Sea.

### Control essential

One essential if the species range is to be widened is some overall control, by a commission or by national or international limits agreements, over all fishing in the waters to be ranched. There will be nothing to encourage a prospective cod or haddock or herring rancher if he did no more than raise fish for others to harvest.

A British commission of growing authority gives promise that more than salmon may be raised along the coasts of the member countries and sent into the sea pasture.

In the North Sea, the EEC and Norway will, we all hope, reach sufficient accord to look to positive management of stocks by adding to them by aquaculture methods.

Plans towards this could be encouraged by the studies of fish control in the sea reported to be making good progress at the Engineering Research Foundation of the Norwegian Institute of Technology (SINTEF).

Writing in the latest edition of *Research in Norway*, Professor Jens G. Balchen suggests that, if it was possible to control the behaviour of fish in the sea, it would not be difficult to visualise new methods for harvesting, for long-term storage and re-harvesting, and new ways of farming fish and shellfish in deep ocean waters.

Research on the project began in 1969. According to Professor Balchen, "much

valuable knowledge and insight has been gained."

He adds that it has been found possible to control behaviour of some species by generating artificial stimuli and directing these towards the fish. It has also been found on what types of stimuli are most effective in different situations and what are the existing limitations.

So far, the most effective method combines two types of signal. The one is propagated easily and quickly in the water, is easy to generate and carries a message, the other means something to the fish under varying conditions.

The first type of signal is already well known in certain fisheries. An example is the flashing light. The second type might be a portion of food or an electrical stimuli.

### Signals combined

"By combining these two types of signal," notes Professor Balchen, "one can obtain a very effective control of the movements of the fish either towards or away from the source of the signals. This combination which may well be called conditioning is used to systematically influence the behaviour pattern."

This could be used for storing live fish, such as is done with salmon in Norway to level out supplies. In addition to work on a "bubble curtain" to fence off bays or arms of fjords, much time has been spent developing an electric fence which emits flashes of light and a shock and thus acts as a barrier without stopping the free flow of water.

To harvest fish kept in large storage areas, work is being done to develop a way of inducing them to swim into the factory's handling system.

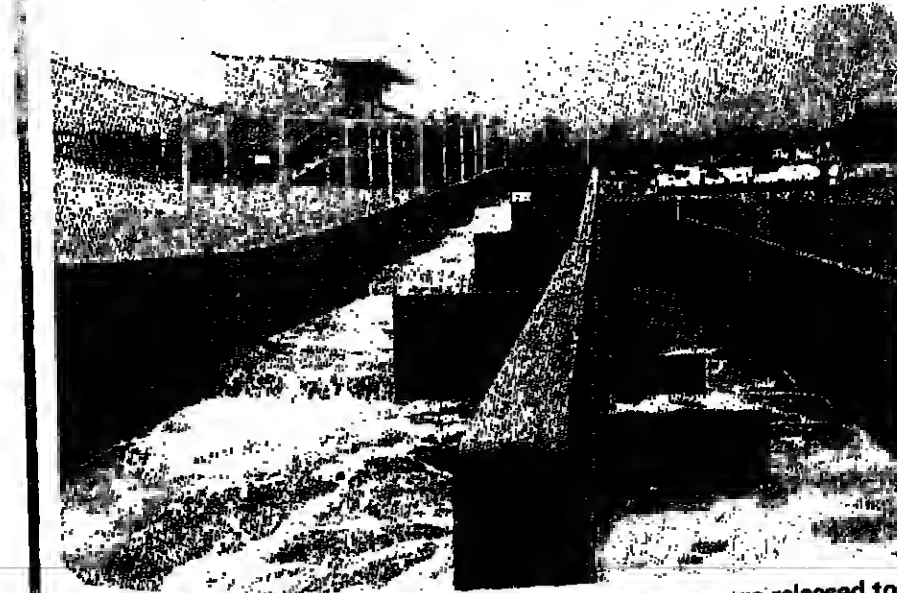
In one method which "seems both promising and feasible," the fish are taught to swim towards one or more sources of food on receiving a definite sound signal. Experiments have shown that fish can be taught to travel considerable distances towards a sound which they have learnt to associate with food. Once they are concentrated, it is comparatively easy to transfer them to the factory either by mechanical trapping or by movable bubble curtains.

### Fish gather

Another experiment showed how quickly wild fish gather around a distinct sound signal. Watched by TV cameras, the first fish came after a few minutes and after an hour hundreds of them were around the food source. Another factor relevant to this is that fish tend to imitate one another causing "chain reactions," with the many following the first few to move.

Professor Balchen says it is hoped soon to use this phenomenon in a system for rounding up live fish where a conditioning unit is placed in a large funnel-shaped trap.

Getting back to salmon, it is also planned to apply the local and sound signals to farming these fish in large water masses.



Fish grown in the hatchery to a size ready for the sea are released to swim through these channels. They will come back to this site after years of feeding in the Pacific.



# READY FOR A BIG SHOW IN ABERDEEN

IT IS ONLY two years since Eagle Exhibitions staged its first major fishery show in Aberdeen, Scotland. It attracted support, but there were anxious moments when a storm demolished one of the temporary halls shortly before opening day.

The hall was replaced and the exhibition was a great success. Next month Eagle Exhibitions returns to Aberdeen with a show twice as big, and backed by the experience and reputation of two good shows — Aberdeen in 1976 and Hull in 1977.

Desmond Corcoran, head of Eagle Exhibitions, confidently puts Catch '78 among the top international fishing events of this year.

"We have had tremendous support from firms in a dozen or more countries," he told *FN*. Two export organisations — in Norway and Denmark — are presenting national displays each with 15 or so main participants. We understand that about 150 manufacturers will have products represented on the Danish stands."

## Two large halls

Eagle will have two big halls erected on the same site as the 1976 exhibition, but differently situated to get more protection from the weather.

In these halls will be over 200 exhibitors



showing equipment ranging from a complete beach-landing catamaran to the latest in fish finding echo sounders.

Several firms will be introducing new products to a fishing area well known for its willingness to try out new ideas.

But Scottish fishermen will not be the only visitors.

"We are expecting fishermen from all over Europe," said Eagle's Sharon Evans. "Some will be coming in organised groups, but many will be making their own way to Aberdeen. We have also had several enquiries from the

United States and Canada.

The exhibition is over five days from June 14 to June 18 and will be open from ten in the morning to six in the evening. The official opening on June 14 will be performed by the Lord Lieutenant of Aberdeenshire.

For its next venture, Eagle is bringing an international fisheries exhibition back to London. It is ten years since the World Fishing Exhibition moved on from Olympia to other places, and Desmond Corcoran believes the venue is now right for an EEC-based international fishing show.

## Euro-meeting in Brussels

EEC FISHERIES Commissioner Finn Gundelach will be among the speakers at a conference on European fisheries to be held at the Sheraton Hotel, Brussels on May 31.

He will speak on the Common Fisheries Policy at lunch time after a morning of national views from inside and outside the European Community. This will include speakers from France, the UK, Denmark and Norway.

The afternoon session will be devoted to fish marketing in Europe. Speakers will analyse the marketing process from fishermen to consumer. There will also be a paper on the outlook for fish marketing in Europe over the next ten years.

The aim of the conference is to enable different countries and interests to explain how they view current and future problems of catching, processing and marketing fish. Although special attention is being focused on the EEC, it will be of interest for all European countries. The key problem of conservation in the North Atlantic will also be the subject of a paper.

Papers will be limited in length to allow time for general discussion of the views expressed by the speakers.

The conference is being organised by Aqua Europe (London), publishers of the fortnightly *Eurofish Report*. Further details are available from Aqua Europe (London) Ltd., 16 Lonsdale Gardens, Tunbridge Wells, Kent, England, or 216 rue Stevin, 1040 Brussels, Belgium.

## MORE SPACE AT OSLO NOR-FISHING

THE ORGANISERS say they are continuing to get good support from fishery equipment manufacturers, boatbuilders, engine makers and others for the 1978 Nor-Fishing international exhibition in Oslo.

## COFI to meet in June

THE 12th session of FAO's Committee on Fisheries will be held in Rome from June 12-16. Set up in 1965, this Committee is made up of top fishery administrators to FAO member countries. It serves as an advisory and review body for the Organisation's Department of Fisheries.

Other meetings of FAO fishery bodies include that of the Western Central Atlantic Fisheries Commission (WECAF) in Panama from May 22-26; the European Inland Fisheries Advisory Commission (EIFAC) in Hamburg from June 20-27; and the General Fisheries Council for the Mediterranean (GFCM) from October 9-23.

The exhibition will be held over a space of some 10,000 sq.m. in the big Sjølyst Centre. It was moved from its former Trondheim venue mainly because it has outgrown the halls and site available there.

One result of the move is that there is considerably more space in accommodation especially designed for exhibitions. This year Nor-Fishing organisers will not have to turn down applications for stand as they have had to in the past.

Another feature of the 1978 exhibition will be a larger and more comprehensive series of seminars.

These will take place in the conference rooms in the Sjølyst Centre. They will deal with processing and with aquaculture.

Further information about Nor-Fishing and the seminars can be obtained from Norges Varesesne, P.O. Box 130, Skoyen, Oslo 2, Norway.

## Meetings and exhibitions

# Indo-Pacific concern over fish stocks

PHILIPPINES President Marcos gave the keynote address during the opening ceremonies in March of the 18th Session of FAO's Indo-Pacific Fisheries Commission in Manila.

The meeting was attended by delegates from 18 member countries and by observers from 12 international organisations.

## TROLLERS CROSS BORDERS

NORTH American Pacific salmon trollers have formed an international organisation from the leading salmon fishermen's associations in the United States and Canada.

Representatives from the associations met in Seattle in March to prepare the ground for the new organisation. It will be called the International Salmon Trollers Conference. Member organisations include the Alaska Trollers Association, the Pacific Trollers Association (British Columbia), the Washington Trollers Association, All Coast Fishermen's Marketing Association, and the Pacific Coast Federation of Fishermen's Associations.

Matters to be dealt with by the international body will include the salmon environment, government fishery regulations and maintaining a quality product.

Chairman of the Conference is Zeke Grader of Sausalito, California. Vice-chairmen are Fred Young of Vancouver and Bob Hudson of Charleston, Oregon.

## Chairman from Tonga

THE SOUTH Pacific Commission held its 10th technical meeting on fisheries in Noumea, French Caledonia, over five days in March. Senior fisheries officers from 11 of the territories in the Commission area took part, under the chairmanship of W. A. Wilkinson, the Kingdom of Tonga's fisheries officer.

Much of the discussion dealt with the Law of the Sea, wider limits and the implications of the setting-up of a Regional Fisheries Agency.

Working in this region are an estimated 90 per cent of the world's fishermen who take 40 per cent of the global catch of more than 70 million tons. The region also accounts for 80 per cent of world aquaculture production.

This session of the IPFC was highlighted by a symposium on fish utilisation and marketing of fishery products. About 80 papers were presented and discussed.

## Co-operation

At the end of the symposium, participants recommended the strengthening of extension work to assist the transfer of research information to fishermen and processors. They urged closer co-operation among research agencies, schools and extension services.

They also recommended that maximum efforts should be directed to the direct human consumption of all fish caught in the region. But resources that would otherwise be wasted should be converted to animal feed.

## Discarded

Members of the IPFC should promote closer collaboration among technologists in the region. And they should pay more attention to hygienic and sanitary aspects of fish handling, including the proper cleaning of fish landing places and markets.

An IPFC study reported to the 18th session shows that too many people in the region are fishing for shrimp, and that large quantities of small fish are discarded or used as low-value feed.

According to the IPFC's tuna management committee, skipjack is abundant in the region but Pacific bigeye and obasore stocks have "shown very considerable decreases" over the past ten years.

It is alleged that almost all the trawlers in the region are using small mesh nets and that they are taking many small fish which they sell cheaply.

The Gulf of Thailand was mentioned as the most serious example of excessive fishing. The fish yield here, says the IPFC, has reached its peak.

## MONTE CARLO SPEAKERS

THE INTERNATIONAL Seafood Conference in Monte Carlo from November 12 to 15 will bring together an impressive group of keynote speakers to deal with its main topics. It recently revealed the names of five of these speakers.

Jens Evensen, Law of the Sea Minister in the Norwegian government, will discuss international negotiations over fisheries and the implications of extended jurisdiction. A multi-national company's view of growth and profits in seafoods will be given by A. H. Coburn, managing director of Findus Ltd., UK.

Dr. Geoffrey Burgess, director of Torry Research Station in Aberdeen, Scotland, will review emerging technology in the fish industry.



Dr. Geoffrey Burgess

An overview of fisheries development plans of emerging nations will be presented by Herman Watzinger, head of FAO's Department of Fisheries.

World-wide health considerations for the seafood industry will be discussed by John Liston, director of the Institute for Food Science and Technology, in the University of Washington's College of Fisheries.

Further information about the conference can be obtained from International Seafood Conference Inc., 111 East Wacker Drive, Dept. R-3, Chicago, Illinois 60601, USA. Telex 25-4073.



Mr. A. H. Coburn

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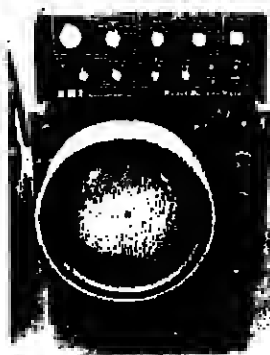
# DEVICE KEEPS RADAR WATCH

WATCHING a radar screen for other vessels in the area can be a tedious exercise, particularly for a fishing boat with a small crew and equipped with an auto-pilot.

But a new device introduced in the United States can be fitted to most radar receivers so that they warn of approaching vessels.

There are dangers in such a device, just as there are in auto-pilots and auto-alarms. A crew could come to rely on it while neglecting to keep a proper watch. But used intelligently it could be a useful back-up.

The device is normally fitted on top of the radar and can be



set to give warning of any echoes in a pre-set area. This might be at a set distance from the vessel but it can also cover a distance zone so that the alarm only sounds as vessels pass through this zone. The alarm area is also variable in sector

which is particularly useful for vessels operating in rivers or narrow channels where the threat can only come from ahead.

Its warning zone is adjustable between 0.2 and 25 nautical miles. The warning is activated by selective circuitry which rules out returns from sea clutter and other spurious echoes.

In addition to the warning, fitting this device also provides a variable range marker and an electronic bearing cursor on the screen, features often lacking on the smaller radar sets.

It is marketed by Radar Devices Inc., of California and they also produce a variable range marker which can cope with ranges up to 75 miles.

## product news

METHODS • GEAR • EQUIPMENT  
• PLANT • COMPANIES

## BOX COOLS AS IT CARRIES

A NEW PLASTIC stacking fish box that insulates its contents by incorporating air bubbles in the polyethylene material is now being marketed by the firm J. Smit of Amsterdam. The Isotherm box has a capacity of 30 kilos (45 litres) and measures 600 x 400 x 250 mm. It comes with a lid and its weight empty is 4.4 kilos.

The insulating property in no way weakens the box. Gert Jan Hoogland, sales manager of J. Smit, told *FNI* when he was in London recently after introducing his firm's range of plastic fish boxes to the British fishing industry.

The boxes are made by the Joh. Panick (JOPA) factory. The first of them were of conventional form and material but, said Hoogland, they had a price advantage over imported plastic boxes when they were introduced in the Netherlands in 1975.

### Thousands

Jopa stacking boxes of 40 and 50 kilos capacity had, he said, gained wide acceptance in the Netherlands. Many thousands were now being used in parts such as Ijmuiden, Urk and Scheveningen. The first export orders had been obtained from Belgium and France.

The Isotherm box gave the effect of polystyrene foam plastic, but offered all the strength and durability of the sturdy polyethylene box.

Further information about the Isotherm and other Jopa boxes can be obtained from J. Smit, c/o Keizersgracht 197, Amsterdam.

## Pakistan boats try Yamaha motors

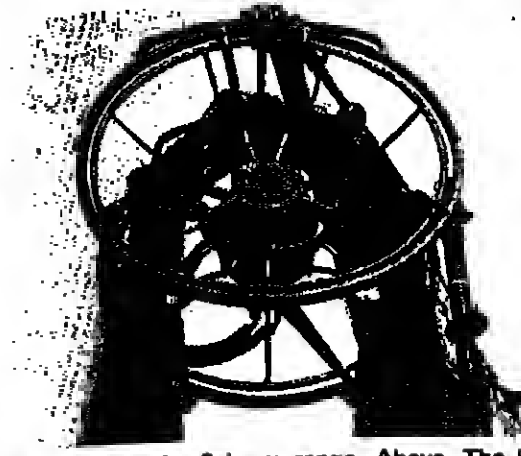
WITH THE help of Yamaha in Japan, the fisheries department of the government of Sindh province in Pakistan is planning to mechanise country boats using paraffin (kerosene) fuelled outboard motors of 12 and 15 hp.

Yamaha donated two motors for the test project and it was inaugurated by Dr. Molnuddin, the State's Director of Fisheries. For an initial demonstration, a Yamaha 12 hp motor was fitted to a 25 ft long country boat, which then covered a distance of eight miles between Ibrahim Hydr to Rehri in 45 minutes.

The project will develop in association with the engine maker and the local agent. Fishermen are being told that the outboard motors, if properly looked after, can give trouble-free service for three years at a stretch. They are also economical with a 12 hp motor able to run for an hour on a gallon of paraffin.

Fishermen's co-operatives are allowed to import engines duty-free. Supplied to fishermen by their co-ops, a 12 hp motor will cost Rs 5,000 and a 15 hp motor Rs 5,500.

According to the Yamaha agent, the Japanese company is working on a project to supply GRP fishing boats 20 to 25 ft long, powered by the paraffin-fuelled outboard motors.



Two blocks in the Selpem range. Above: The Pagaso. Below: The larger Nettuno.

## POWER BLOCKS FROM ITALY

THE ITALIAN firm Scipem, based in Genoa, now offers a range of fishing power blocks with hauling capacities from 250 up to 3,000 kilos.

Smallest of these blocks is the Super Tyros, with integral hydraulic motor and an open hauling drum made up of overlapping open spokes. It is designed for pillar mounting.

### Similar

Next in the range, the Pagaso block has a pull of 500 kilos. It is similar in design to the Tyros but has a fixed outer ring to the hauling wheel.

Boom-suspended blocks are available in three sizes. The smallest is the Nero, with a 500-kilo pull.

The two larger blocks—the Nettuno (1,100 kilos) and the



Titimus (up to 3,000 kilos) — feature rubber-lined solid metal wheels.

All Scipem's blocks are supplied with hydraulic pumps, which can be belt-driven from an engine. The speed of the blocks is around 30 rpm.

# INVENTIONS

## ..TO PUT IT ON

THE NEW Lawco Rola-Stencil is a versatile, low-cost marking unit for stencilling on all types of packages and containers, from hessian sacks to wooden boxes and metal drums.

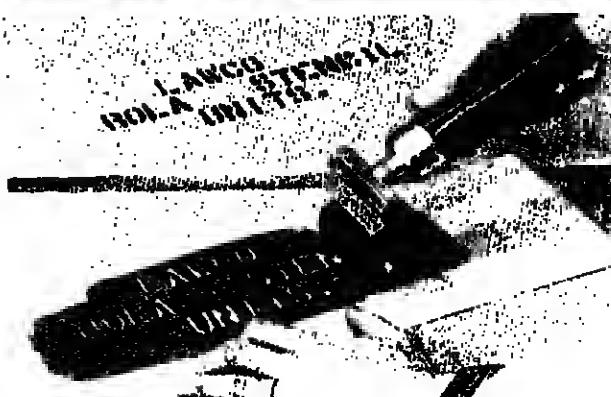
Light in weight and easy to use in any position, the Rola-Stencil uses special fast-dry ink which comes in a variety of colours.

### Ink holder

A feature of the new unit is its disposable ink container. This screws into the ink roller head and then doubles as the handle of the unit.

The Rola-Stencil is supplied in kit form comprising one roller applicator, an interchangeable brush head, a spare roller, felt wick and ten disposable ink cartridges.

Further information from Lawtons of Liverpool Ltd., Coding and Marking Division, 60 Vauxhall Road, Liverpool L69 3AU, England.



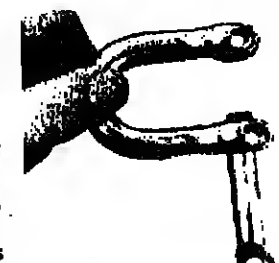
Applying the new Lawco Rola-Stencil to a package.

## ..TO KEEP IT IN

A STAINLESS steel shackle with a "captive" pin that can't be lost is the simple but ingenious product of the Wichard Company in France.

This firm is a maker of forged stainless steel snap hooks and shackles for yachts and other small boats. A short time ago it replaced its traditional shackles with new (patented) type in which the threaded pin is so designed that it stays in the U bolt.

It claims that this is not only convenient for the user but that it also improves the tensile strength of the shackles by eliminating a weak point in the pin.



The new captive pin shackle, showing how the pin is held in the U bolt.

Further information about these shackles can be obtained from the Wichard Company, B.P. 130, 63302 Thiers-Cedex, France.

## ..TO LET IT GO

A NEW device intended to reduce the risk of the emergency position indicating radio beacon (EPIRB) falling to break free if a vessel sinks in icy conditions is being tried out aboard the Hull trawler *St. Gerontus*.

It was invented by Laurie Dixon of Hull. Basically, the device is a gimbal fitting which carries the radio beacon so that it always remains vertical and ready for action when needed. It is sited in an area where there is the least danger of icing.

The US Coast Guard is also reported to be interested in the device, which prevents icing by moving with the rolling and pitching of the ship. While external heaters may be the best way of protecting against icing-in of the EPIRB, Electrodes Marine Ltd., of Hull, which made the prototype of Dixon's invention, feels the Dixon device may meet the safety requirement at much less cost.

## NEW SEARCHLIGHT

FRANCIS SEARCHLIGHTS, a division of Lucas Marine, has introduced a new searchlight to its already comprehensive range.

The unit is available in two versions, the M35 deck mounted, and M36 cabin mounted. The 280mm (11 in.) searchlight has been specifically developed, says the manufacturer to meet the need for a compact, high output searchlight for high voltage marine systems on smaller vessels.

It is manufactured from brass with high corrosion resistance and is totally non-magnetic. The searchlight is fitted with Admiralty-approved optical glass reflectors to withstand the effects of

seawater and maximum temperature of the projection lamp, a tungsten halogen light source.

Toughened front glass and swing bolts for easy front tilting provide a high specification of construction. The searchlight is ventilated and weatherproofed.

Operating from 220-240 or 110-115 volts, with a maximum of 500 watts, the unit generates approximately 450,000 candle power and is fitted with a medium pre-focus lamp holder.

Further information from Lucas Marine Ltd., Eymley Rd., Camberley, Surrey GU16 5EU, England.

## Canada advised to use Loren C

THE CANADIAN government has been advised by a departmental study to select the Loren C navigation system for the Atlantic coast and that this should be fully operational by 1983. The recommendation was made after a study carried out by Transport Canada and Canadian Coast Guard.

According to the newsletter of the Nova Scotia Department of Fisheries, the aim of the study was "to find the best system for the most people at the least cost." In addition to Loren C, it looked at Loran A, Decca Navigator, Omega and satellite navigation.

"From a fisheries point of view," noted the newsletter, "the report considered Loren C will provide the best overall system. There will be some degradation of repeatability within 50 miles of existing Decca stations, but an improvement in accuracy and coverage beyond 50 miles."

If the recommendation is accepted, installation of the Loren C system will cost anywhere from eight to 24 million dollars with annual operating costs of about \$250,000 per transmitter. The United States could also influence any decision.

The US Coast Guard has designated Loren C as its navigation system. Soon, all ships over 1,000 tons entering the United States waters will have to be equipped with Loren C receivers.

Of the other systems considered, Loren A was discarded as obsolete. Omega, while seen as a world-wide system, "has limited accuracy and is therefore primarily a high sea navigation system."

Although seen as the "ultimate in navigation systems," satellite navigation "is still years away in terms of final installation."

This left Loren C and Decca as the main contenders. Many fishermen, says the newsletter, feel that these are complementary systems and that one should not be developed at the expense of the other. However, the Canadian Coast Guard considers it unlikely that funds will be available for both systems.

## SOUNDERS FOR SMALL BOATS

MORROW International Inc., has introduced a new line of depth recorders designed for use in small fishing vessels where space or power limitations prevent the installation of larger commercial instruments.

There are five sets available in the Morrow Sea Viper series. The SV-100, SV-100A and SV-100B recorder-flashers offer dual presentation through an LED flasher and four-inch recording chart.

These units have four depth ranges given in fathoms (SV-100) and feet (SV-100A and 100B) with maximum depth ranges to 100 fathoms, 600 and 300 ft. Their features include

bottom line (white line) control and 20 per cent. scale overlap.

The two larger sets in the range have these features, plus variable power switch and zero adjustment. They also incorporate Morrow's Paper Saver Concept. Recording paper comes in a clip-in cassette and it can be used on both sides.

The SV-150 and SV-300 4 1/2-inch recorders have two groups of three depth ranges with the maximum 150 and 300 fathoms respectively.

Further information from Morrow International Inc., P.O. Box 7078, Salem, Oregon 97303, USA.

## EEC net group

LED BY its chairman, C.de Koning of The Netherlands, delegation from the newly-formed European Community Association of Net Manufacturers was received by the EEC Commission in Brussels in February.

Set up in Paris in November, ECANEM has been created by the main makers of nets in the EEC countries. It defines its aims as the promotion of direct and regular contacts between net makers, and to defend the economic interests of the profession.

"It is essential for Community independence that a single nets manufacturing industry be maintained," says the Association.

The first general assembly will take place on June 21 at ECANEM registered offices, 3 Avenue du Président Wilson, 75116 Paris.



To improve our service to customers, we are pleased to announce the formation of Euronete (U.K.) Ltd., established at Fleetwood, England, to enable us to offer better sales and service to our clients throughout Northern Europe.

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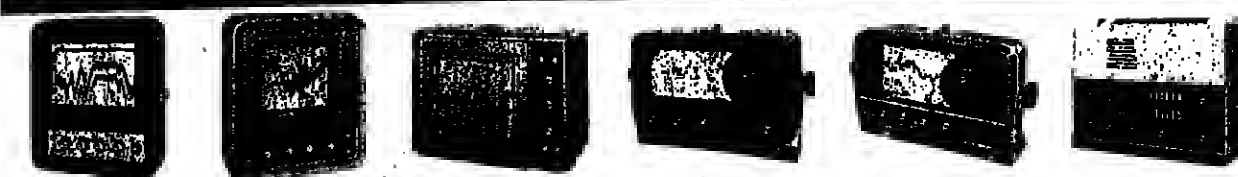
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# GAS DETECTOR FIRST

## OF ITS TYPE

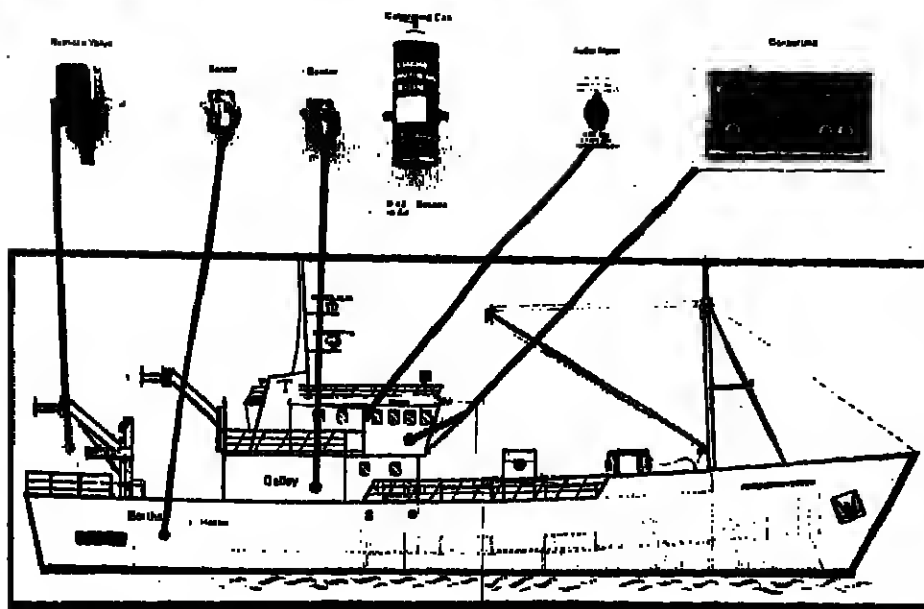


Diagram of a typical fishing boat, showing the ideal positioning of Gondolastic Gas Sentry MK3 gas detectors... The only system fully approved by the UK Department of Trade.

A NEW GAS detection system for use in fishing boats warns of gas and cuts off the supply at source.

It is the first system of its type, says the supplier, to be certified as intrinsically safe by the British Approval Service for Electrical Equipment in Flammable Atmospheres (BASEEFA).

Gas Sentry Mark 3 is supplied by Gondolastic Ltd. It consists of a control box connected to sensors mounted in potentially dangerous areas and a remote shut-off valve inserted into the gas supply pipe at, or near, source.

As little as two per cent of a flammable gas mixed with air is a potentially explosive mixture, says Gondolastic. It is, therefore, tiny leaks which are the most lethal and which

only require the smallest spark to trigger off an explosion.

The Gas Sentry Mark 3 will detect minute quantities of hydrocarbons in the air, including methane, propane, butane and carbon monoxide. Sensitivity can be adjusted to detect concentrations as low as 0.3 per cent although 0.5 per cent is the more usual requirement.

The sensors incorporate solid state semi-conductors which, when flammable gases are present in the surrounding atmosphere, rapidly increase in conductivity triggering the

audible and visual alarm and automatically shutting the remote valve. Additionally, dangerous electrical circuits can be isolated by the remote control unit.

Regulation of the voltage and limitation of the current to the sensors prevents heat build-up and the production of a spark (which could occur in unsafe equipment).

Further information from Gondolastic Ltd., Broxbourne Stud Office, Birmingham, Pershore, Worcestershire WR10 1BR, England.

## Shallow water triggers alarm

A NEW electronic depth alarm from Channel Marine could help save boats from running aground.

The alarm is triggered off by a photo-sensitive eye which is mounted on the rim of any suitable LED or neon type depth sounder, such as the Scafarer range of sounders.

Once triggered, it gives a loud, audible warning at any preset depth.

The alarm unit consists of an on-off switch and audible alarm housed in a high impact ABS plastic box. The unit is powered by two PP3 batteries and current consumption is around 2mA.

It can be sited anywhere in the cabin, so long as the photo-sensitive eye reaches the echo sounder dial. Fixing is simple by means of two screws through rubber grommetted holes in the back of the unit.

### Helmsman free

As well as giving advanced warning of shallow water, the unit is useful when tacking in between shoal banks and when following contour lines marked in charts.

The helmsman is then free to watch the boat's course instead of keeping constant watch on the sounder.

Further information from Channel Marine (Sales) Ltd., 424 Margate Road, Ramsgate, Kent, England.

## THREE POWER SOURCES FOR PUMP

A NEW centrifugal pump set for a variety of applications has been developed by Stuart Turner Ltd. It is available with petrol or diesel drive as an alternative to the more usual single phase AC motor.

This self-priming pump set, with two-inch outlet, becomes the largest model within the Stuart Turner range. With petrol or diesel drive, low head output exceeds 6,000 gallons an hour (456 litres a minute) and top pressure is equivalent to a 100 ft. head (2.9 ATM).

Low head performance also exceeds 6,000 gallons an hour using 2hp electric motor drive (2,900 rpm) but maximum pressure is reduced to a 60ft. (1.74 ATM) head.

The main pump components are aluminium. The approximate weight of the portable engine driven sets are 52lb. (23.5 kg) using a petrol engine of 128lb. (58 kg) with a diesel drive.

Further information from Stuart Turner Ltd., Market Place, Henley-on-Thames, Oxon, England.

## Container brochure

A NEW full-colour brochure from GPG Containers aimed at the fishing industry illustrates all their fish boxes, baskets and containers generally available together with ancillary products such as polypropylene floor-sheets. The brochure, which details the technical specifications of each product, is available on request from GPG Products Ltd., Cranford, Blyth, Northumberland, CV18 2RO, England.

## product news

METHODS • GEAR • EQUIPMENT  
• PLANT • COMPANIES

## NEW RADIO TELEPHONES

TWO fully synthesised VHF/FM marine radio telephones, a powerful 75-watt coastal SSB and a VHF/FM direction finder, feature in the 1978 line of marine electronic equipments from Intech Inc. of Santa Clara, California.

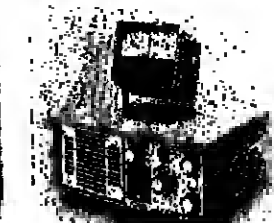
The Marine 70 VHF, with 55 transmit and 76 receive channels, offers 25 watts output power and is priced in the USA at \$595. It includes bright digital display, microphone and mounting bracket.

The Marine 80 has direct digital synthesised circuitry along with micro-processor controlled keyboard. Full 114 channel capability includes up to 10 programmable private channels.

Designated Marine AN/SRD 21, the new Intech VHF/FM direction finder was designed and built for the US Coast Guard. Frequency range is 156 to 163 MHz.

The Marine 500 SSB radio telephone offers 75 watts PEP and a range of 2 to 5.2 MHz.

Further information from Intech Inc., 282 Brookway Road, Santa Clara, California 95050, USA.

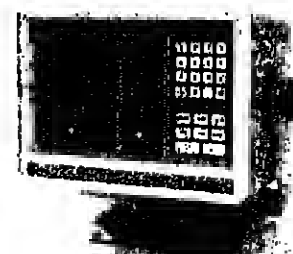


Mariner AN/SRD 21



Martnar 70

## Satellite system shows it all



ESZ-4000 navigator.

NAVIDYNE Corporation of Hampton, Virginia, claims that its new ESZ-4000 satellite navigator is the first system of its type to provide a full-time display of all useful navigation data.

"This feature," says Navidyne, "eliminates the need for any operator interaction with the system after a simple set-up sequence. Low-cost video monitors can be placed in the captain's accommodation, the wheelhouse or wherever desired, providing an unlimited remote display at minimal cost."

Another feature claimed for the ESZ-4000 is that it has far

display. The top group includes date and precise GMT, ship's latitude, longitude, dead reckoning time since the last satellite pass and ship's speed and heading made good.

The second group consists of great circle and rhumb line distance and bearing to a selected waypoint or destination, along with computed values of set and drift. Computed set and drift are also used to improve navigational accuracy between satellite fixes.

The third group provides data relating to the most recent satellite pass and also informs the operator when the next available satellite will appear. The ESZ-4000 also features an "ALERT" display mode, which allows the user to view a list of future satellite passes and past fixes.

Further information from Navidyne Corporation, 408 Industry Drive, Hampton, Virginia 23661, USA.

fewer parts than earlier satellite receivers. "This, in turn, has achieved higher reliability, a very compact package and a much lower price."

When power is applied, the ESZ-4000's interactive display automatically requests entry of initial data. The fully modular ESZ-4000 also incorporates automatic self-test and fault isolation capabilities, permitting fast and convenient repair by plug-in module replacement.

Navigational data is arranged in three groups on the cathode ray tube (CRT)

# AFUS

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HULL, ENGLAND

TELEPHONE: 62162 (3 lines)  
TELEGRAMS: "APEX," HULL  
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## TORRY SMOKING KILNS

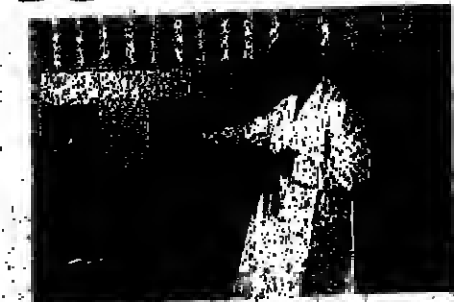
- \* Compact, occupies little floor space.
- \* Operated at a fraction of labour cost of traditional method.
- \* Rapid drying or curing time.
- \* Simple to operate and flexible for varying throughput demands.
- \* Waste of products during cure eliminated.
- \* Supplied in unit form and only requires wiring and chimney connection on site.
- \* Now incorporates fully automatic smoke producer as illustrated.

Illustrates hot smoking of trout in a Mini Kiln

Widely exported to 65 countries

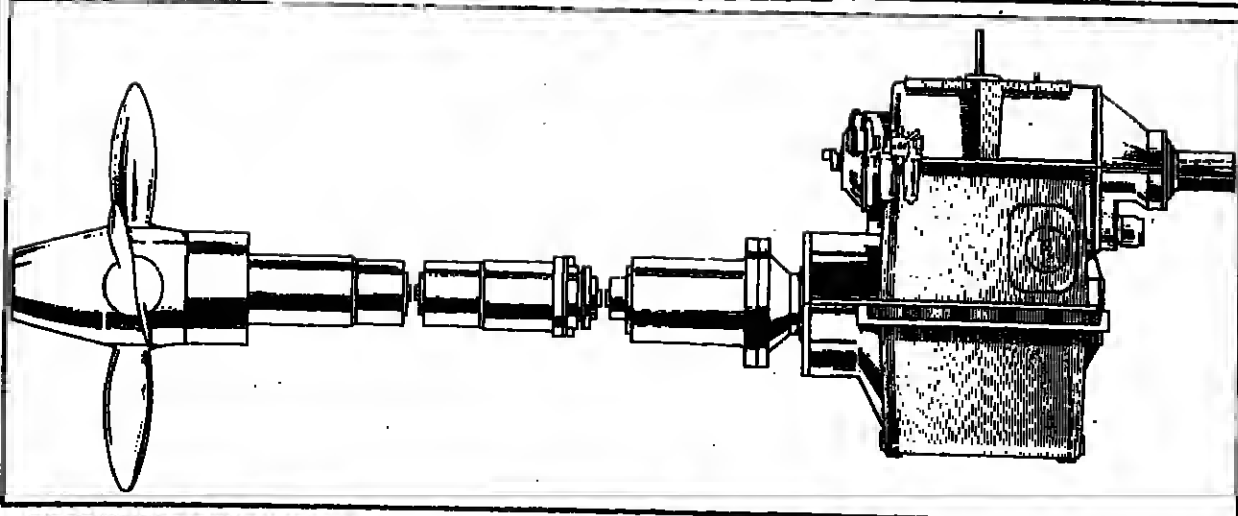
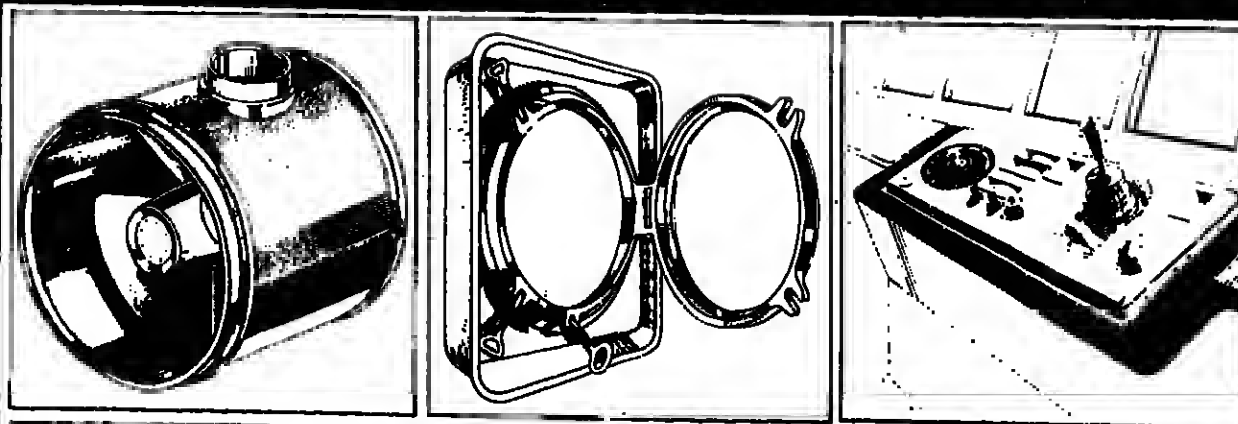
350 Kiln fitted Automatic Smoke producer

Defrosting plant capacity 10 tonnes thawing 45 Kiln blocks of Cod



DISTRIBUTORS IN ENGLAND FOR THE "ARENCO" RANGE OF FISH PROCESSING EQUIPMENT

# DETAILS THAT COUNT



### TRANSVERSE THRUSTERS

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### G.R.P. PRODUCTS

The ULSTEIN Group have their own plant for G.R.P. products for the marine industry, such as life bells, containers, window frame sections, fire hosa and lifebelt boxes, watertight doors etc.

### FCM «JOYSTICK»

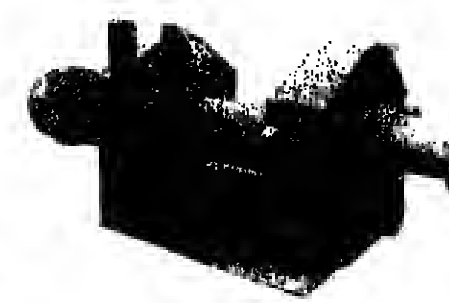
The FCM is an integrated manoeuvring control system, where all propeller units are connected. The course setting is made on a gyro repeater, and by using one universal lever (the «Joystick»), the vessel can be moved in all directions, remaining at the same course.

### C.P. PROPELLERS

Controllable Pitch Propellers, complete with reduction gear, power range from 200 — 8500 BHP. They are in use in approx. 1000 vessels on all oceans.

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Ulstein (U.K.) Limited, Tynemouth, Durham  
Hillend Industrial Estate, FIFE KY 11 5 JT  
Tel. (0363) 62 31 68 Telex: 727383 ulstn g



# WINCH GETS TOUGH WITH DEEP WATER

THE MARINE Construction & Design Co. (Marco) of Seattle has introduced a new winch which it calls the Tough Trawler. This is designed for coastal fishing vessels from 80 to 110ft. (24.4 to 33.5 metres) long and powered by engines of up to 1,000 hp.

"It is for vessels that are fishing deeper and are using bigger nets than has been the case in recent years," explained John R. Logan, sales vice-president.

The new split-design winch (model WT202) has a large drum taking 1,000 fathoms of 3/4 in. (19mm) wire. At full drum, the pull is five tons, maximum speed is 390 fpm (119 mpm).

A powerful external hand brake on the winch can hold 3/4 in. wire at mid-drum. Controls for the brake as well as for the clutch and main valve can be local or remote. The winch is reversible.

Options include a gypsy and automatic diamond-screw levelwind. First winches of this type have been delivered for trawlers being built in Chile, Uruguay and Oregon and California in the USA.

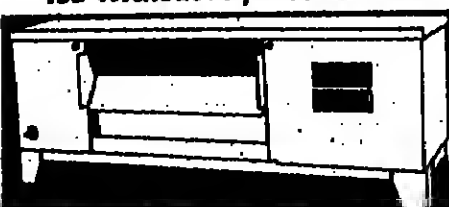


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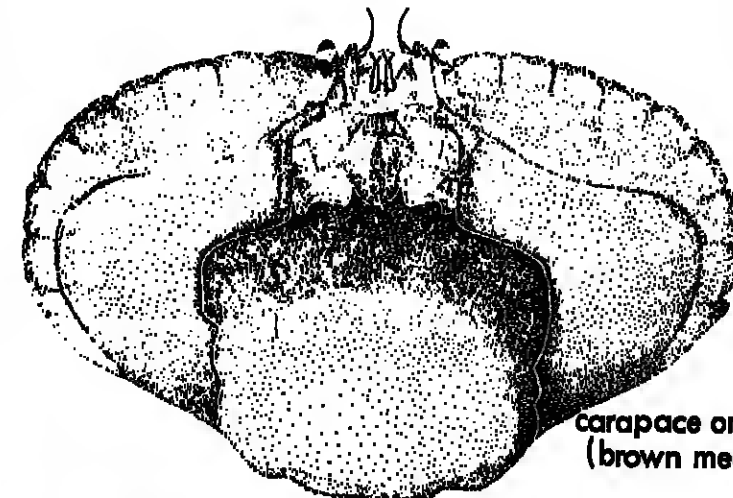
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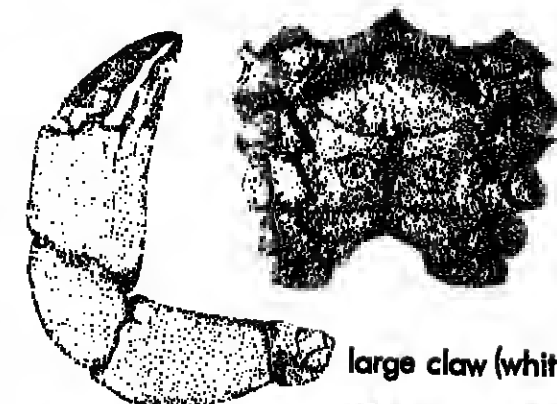
TELEPHONE: 4180-3855 TELEX 50110  
Member of the Van Voorden Group



Components of a butchered crab from which edible meat can be extracted. Done by hand, however, this can be a time-consuming, tedious and unpleasant task. The Americans have had considerable experience in mechanising the process and this is now being applied in the United Kingdom.



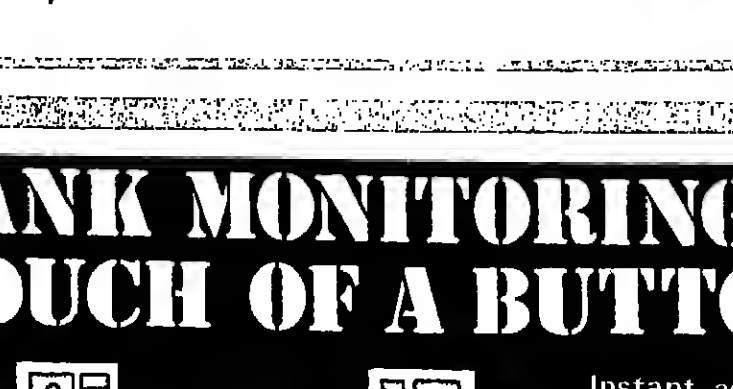
carapace or carapace (brown meat)



body (white & brown meat)



large claw (white meat)



legs (white meat - often discarded)

# EASY PICKING

## Mechanised crab processing machine tested in Scotland

THE EUROPEAN edible crab (*Cancer pagurus*) is one of the few underexploited shellfish species in our waters. In 1976 the catch totalled some 7,700 tonnes, worth £1.9m, but it is estimated by marine biologists that this catch could be at least doubled, if not trebled.

The majority of the underexploited resources are on the east coast of England and in Scottish waters, whilst the stocks off south west England would not sustain a heavier rate of exploitation.

Some three years ago enquiries were made into why more crabs were not caught in UK waters when, in fact, markets appeared to be healthy as shown by the relatively large imports of crab in various forms. For instance, we imported almost £1.5m. worth of canned meat alone in 1976.

It was discovered that the major problem, the weak link in the chain from catcher to customer, is the extraction of the meat from the shell.

The task of removing the meat from the shell is tedious, time consuming and, incidentally, unpleasant.

The result is that in recent years the rising cost of labour had deterred shellfish processors from handling crab. If they have, in many cases only the most valuable and easily extracted claw meat has been used.

The situation is similar to that found in the USA perhaps a decade or so ago which led to concentrated attempts to mechanise the extraction process.

The first approach was therefore to make contact with the National Marine Fisheries Service (NMFS), Gloucester Laboratory, where it was known that research on white crab meat extraction was in progress.

### Tough shells

The Americans exploit various species of crab and this has led to the development of a number of different machines, each suited to a particular crab or group of crab species. Some of their crabs have tough, leathery shells, for instance red crab (*Geryon quinquevittatus*), and the meat from such species can be easily squeezed out.

Report by  
J. G. Farly and  
G. D. Stroud,  
Torry Research  
Station,  
Belfast

The machine developed for processing these crabs works on the principle of an old fashioned mangle. It gives an excellent product.

The Americans also exploit hard brittle shelled crabs, rather similar to the European edible crab and for these species a number of machines have been developed over the years; perhaps this reflects the relative difficulty of obtaining a top quality product by machine processing.

The most recent development, and one in which NMFS has been closely involved, is the use of a specially modified so-called solid-bowl decanting centrifuge. This equipment is commonly used in various industries.

The modified centrifuge, manufactured by the Bird Machine Co. of South Weymouth, Massachusetts, is linked with various other

pieces of equipment to form a system.

The Bird system consists of a comminuting (chopping) machine into which parts of the crab containing white meat are fed after butchering.

The setting of the comminutor is important since, on the one hand if the chop is too fine the meat flake size will be unduly small, but on the other hand, if the pieces of crab are too large, the meat will be retained in the shell and yield will be lost.

After comminution the chopped crab is fed into a continuous stream of brine at a particular specific gravity. In the US work 1.5 per cent sodium chloride was used.

The brine and chopped crab is then fed into the centrifuge and, of course, is flung by centrifugal force to the periphery of the inner rotating bowl and in the pool of brine held there.

If the specific gravity of the brine is correct the shell will sink and the meat float. Both are then transported by a rotating spiral, the meat and brine overflowing over a weir at the entry end of the centrifuge and on to a sieve.

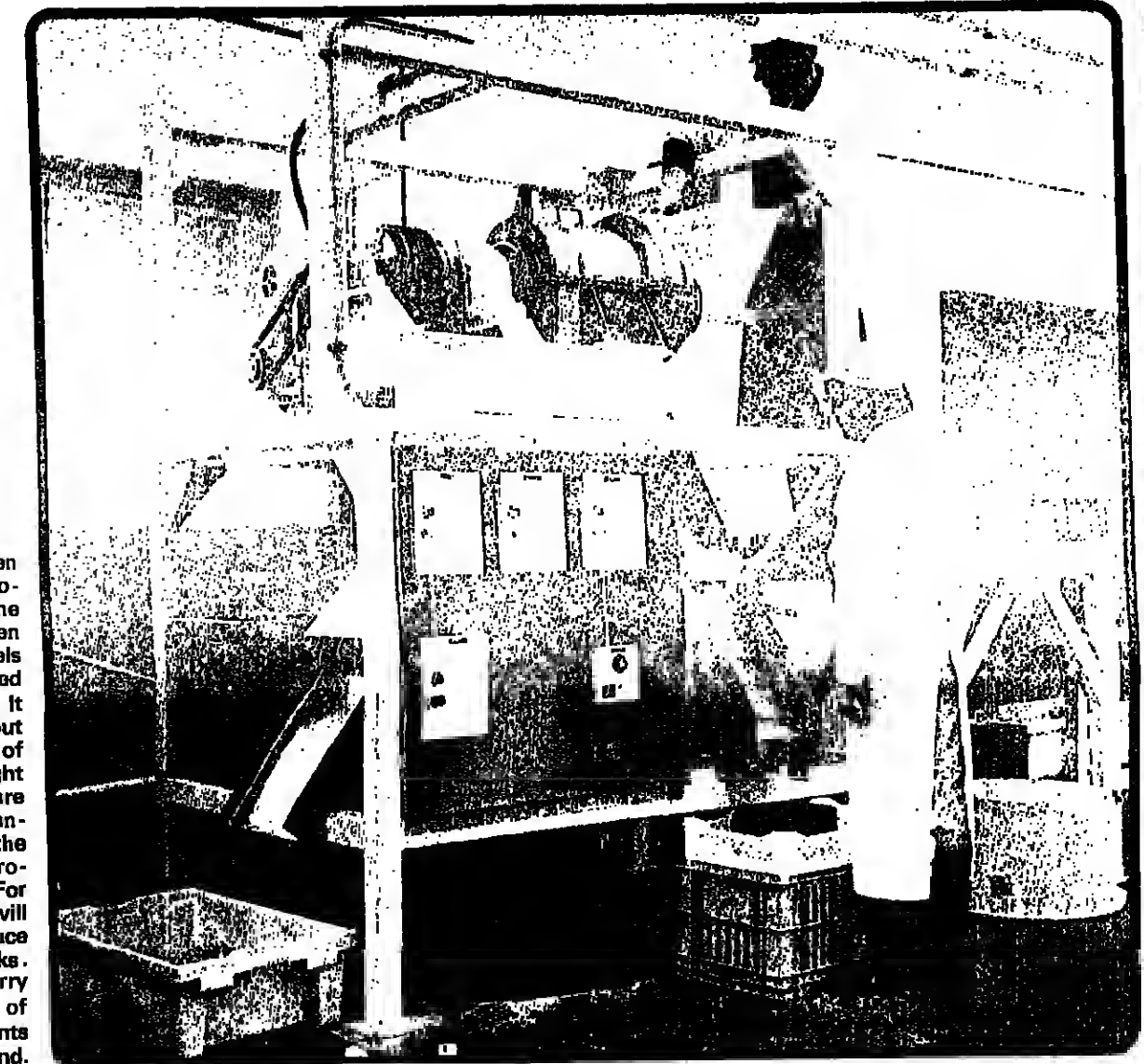
The shell is pushed by the rotating spiral with minimal fluid loss, back between the outer casing and the inner spinning section to an outlet at the opposite end of the centrifuge.

After sieving to remove most of the brine the meat is washed. The brine is filtered and recycled.

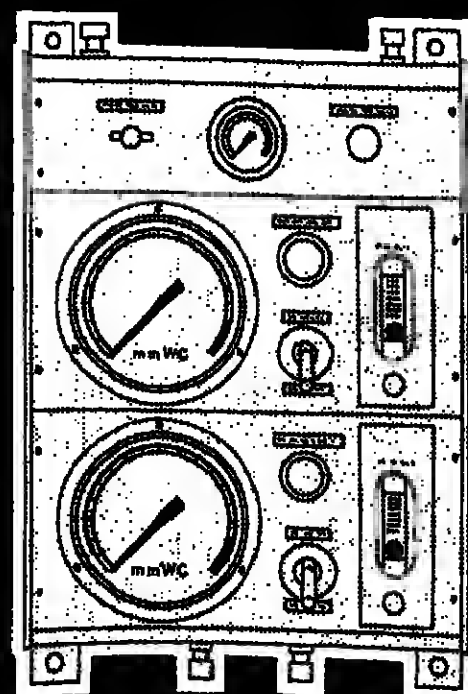
Preliminary trials by Torry Research Station (TRS) in the USA on the European edible crab showed that the product was of reasonable quality; the appearance was good, the meat retaining a flaky texture.

The flavour was somewhat salty but not

The American Bird crab processing machine which has been leased for trials in the United Kingdom. It handles about four tons of crab in an eight hour shift. There are disadvantages for the British processors. For example it will not produce meat in chunks. However, Torry has a number of improvements in hand.



## TANK MONITORING AT THE TOUCH OF A BUTTON



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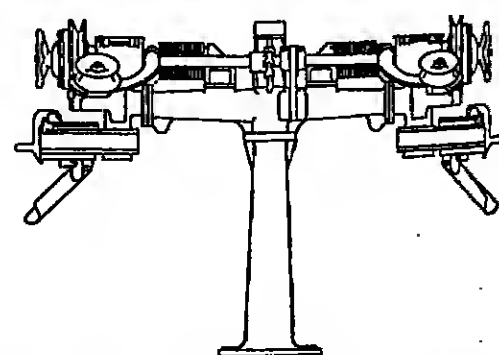
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## THE BECCLES COILER



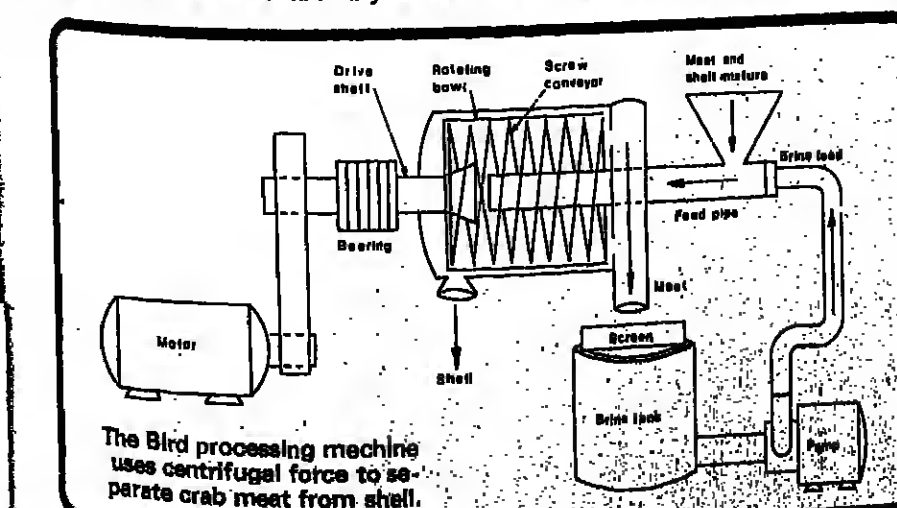
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The Bird processing machine uses centrifugal force to separate crab meat from shell.

showed that the system would be highly worthwhile in the UK.

Obviously, at this stage certain assumptions were made and one of these was the price the product could demand on the market. So the next move was to approach the shellfish industry for a commercial assessment of machine and product.

This took place in the USA during a visit there by TRS and industry representatives last spring. It led to the leasing of the system by Youngs Seafoods Ltd. for more extensive trials in Britain.

The machine was situated at Young's Highland Seafoods plant at Inverberrie, Scotland, where trials are still in progress.

These have been done jointly by Young's and TRS and we acknowledge the very full co-operation from the company and its agreement to the publication of experimental results acquired on the machine. We should also particularly like to thank Mr. G. Cloude, manager at Inverberrie, and his staff for their help.

### White meat

During the latter part of the 1977 crab season it was established that white meat of acceptable appearance can be extracted from the legs, bodies and claws. The colour is similar to hand picked meat, and is white in the case of claw and body meat, but the leg meat is reddish brown due to the pigmentation present.

The texture of the meat is flaky, but lumps of meat are not obtained as with hand picking of the claws. This is obviously a disadvantage. At first, using 15 per cent sodium chloride for the extraction, it was found that the flavour was too salty, but by using eight per cent sodium chloride and eight per cent sucrose the flavour has been much improved.

### Double yield

It has been confirmed that the yield is more than doubled over the normal level obtained in the factory, where only the claw meat is normally extracted.

The procedure that might be adopted in commercial use would be to continue the hand picking of claws for the present range of products requiring lumps of meat because these cannot be obtained using the machine.

However, material discarded from the claw picking lines, together with the currently discarded bodies and legs, would be mechanically processed to recover saleable meat for further processing.

During the forthcoming season it is planned to make a number of improvements.

Firstly, the presentation of the butchered crab to the machine will be conveyed so regulating throughput. For this the comminutor will be raised so that the chopped crab is dropped directly into the centrifuge.

turn to page 60



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We also have large stocks of rope, floats, leadline, twine, otter boards, etc., in many sizes.

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**INDIAN FISHERY REPORT****POWERED BOATS AND BEACH MARKETS**

In this, the second of his three-part review of a new FAO working paper on Indian fisheries, CEDRIC DAY looks at vessels, processing, marketing and small-scale fishing

IT IS estimated that there are more than 200,000 non-mechanised fishing vessels in operation around the coasts of India and more than 12,000 mechanised vessels.

These figures alone indicate the potential for introduction of engines into the small-scale fisheries of the sub-continent.

The breakdown of these figures — given in the Indian "working paper" issued by the FAO/UNDP project "Development of Small-Scale Fisheries in Southwest Asia" — shows that the mechanised vessels included more than 3,500 gillnetters, 3,200 trawlers, almost 1,000 liners and a variety of other craft.

Non-mechanised craft include more than 17,000 beach seine boats, 47,000 catamarans, 47,000 dug-out boats, 39,900

plank-built boats and many other kinds. These indigenous fishing boats vary to some extent from state to state.

The working paper also estimates the numbers and varieties of gear used: More than 250,000 drag nets, almost 600,000 gill nets, some 130,000 trawl nets and more than 420,000 cast nets.

Shore seines are estimated at 120,000, while the vast number of traps, including those used in the extensive inland fisheries of India, number upward of 750,000. There are also many other kinds of gear.

At best, these figures can only be taken as informed guesses but they do give some idea of the size and complexity of the Indian fisheries scene.

The FAO report goes on to give details of craft and gear combinations and of the various operational patterns of fishing in use.

A major fact in Indian fishing is that most of the catch "is landed on open beaches." Along all the 6,000 km and more coastline of India, there are only about 1,300 landing centres, which again indicates the scope for development of shore facilities.

Indeed, in successive five-year plans the government of India has provided jetties, berthing basins, slipways, entrance channels, breakwaters and other har-

bour facilities in many places, including shore facilities.

Under the present plan some further 70 such places are being, or are to be, developed. Even so, the needs remain vast and are likely to remain so for years to come.

The same is true in relation to handling and processing facilities. As the FAO report records, much progress has been made in the provision of ice and cold storage and in the freezing and canning section of the fishing industry. But there is a need for much more development of handling and processing facilities.

**Complicated**

"Marketing of fish in India is complicated," says the report because of the nature of fisheries, the wide dispersal of landing centres and the different types of markets served.

Only a small part of the catch is sold by the fishermen, most of it being handled by middlemen who sell it through retail markets or through auctions.

The system is largely traditional, a stronghold that the government has been



Age-old methods and traditional craftsmanship combine in this worker building a small wooden boat which may, however, be powered by a modern outboard motor.

trying to break over the past 30 years by promoting fishermen's co-operatives. While there have been some notable successes in establishing such co-operatives (see story of the Versova co-op in this issue), they are exceptions to the general experience so far.

**Exporter**

In addition to domestic marketing of catches, a highly important source of protein-rich food in a country where the mass of people have insufficient protein in their diet — India is also a big exporter of fish and fish products. As the report states, this trade is conducted with

more than 50 countries, the bulk being with "Japan, USA, Australia, France and UK."

The report deals with the distribution aspects of the fish trade, prices, demand and supply, exports and imports. There is also a section on ancillary industries. This shows that there are 69 wooden boat building yards in India, 16 for constructing trawlers and three for building FRP boats. All these are "registered" yards. There are, of course, numerous non-registered yards where indigenous types of craft are built, including small trawlers.

A table is given of firms which build marine engines in India, indicating the make, power and output. Reference is also made to repair and servicing facilities and to the fishing gear manufactured in India.

**Improvement**

There is an interesting section on the socio-economic aspects of small-scale fisheries in India relating to the total fishing population of the country — more than five million. Referring to the fact that "the majority of the fishermen belong to an economically backward sector" of society, the report says "there has been considerable improvement in living conditions of fishermen in recent years."

An important part in this progress is being played by the women in the fishing communities. They work in net making, net repairing, the retail sale of fish and in other supporting jobs in addition to their domestic activities.



There are estimated to be nearly 70 "registered" wooden boatyards in India. Many of them are like this small yard turning out traditional boats for the fishermen of southern India.

WALOKER & CO. KG D-2854 LOXSTEDT

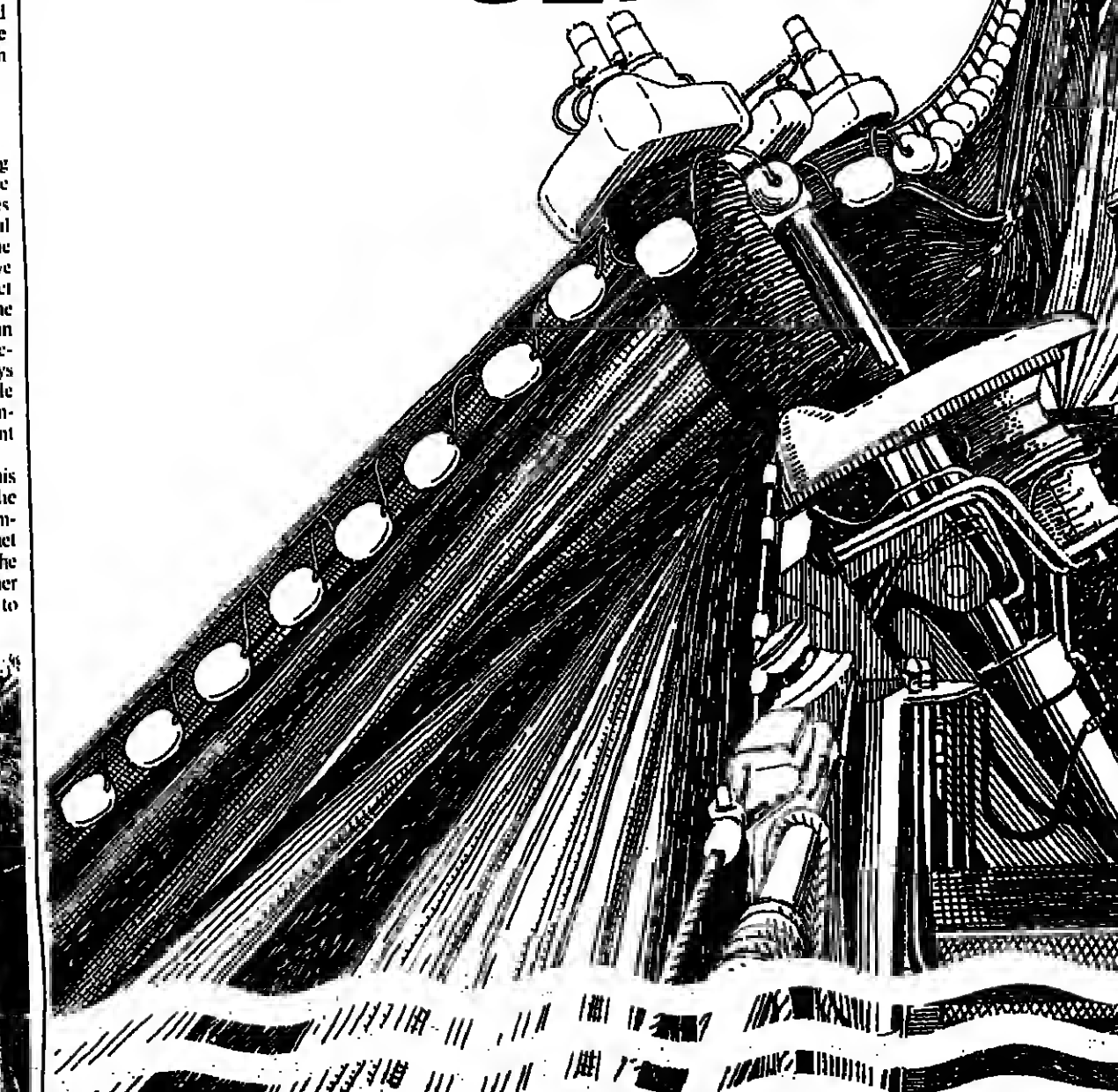
**WACO**

Fish Box  
Elevators

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**Part TWO**

Most of India's catch is landed by inshore boats on open beaches. Here, fish sellers are seen on a Kerala beach with catches just brought in.

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NET WINCH**

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The TRIPLEX hydraulically operated seine winch hauls with all three rollers simultaneously.

100% effective pull on the net and cork line.

Wear on net reduced.

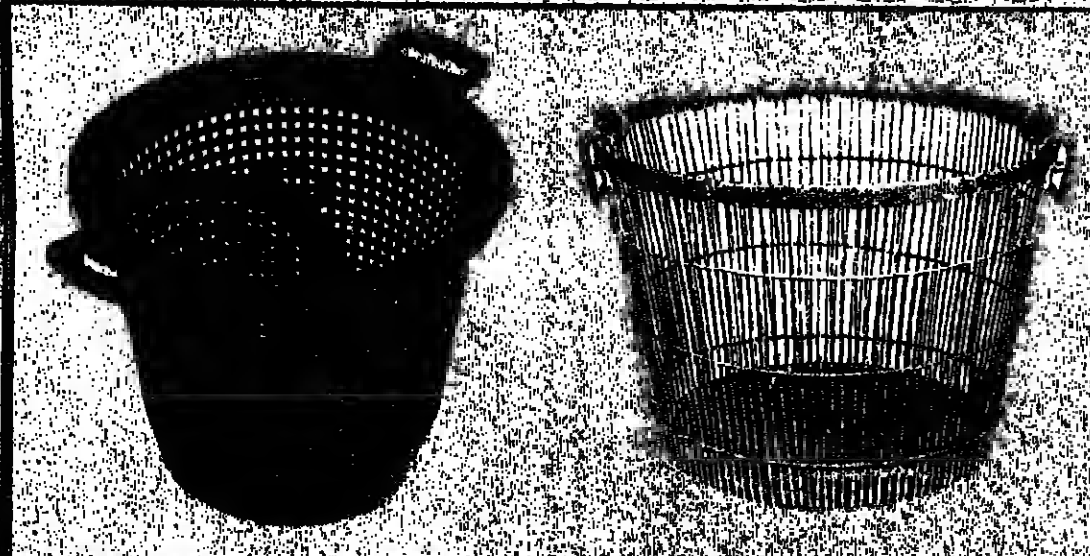
Roller lined with replaceable rubber coated cylinders.

TRIPLEX NET WINCH delivered now in three sizes:

Type 380/228 with theoretical net pull 1.5 and 3 tons.

Type 504/300 with theoretical net pull 4 and 8.5 tons.

Type 603/360 with theoretical net pull 15 tons.

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BCM now offers two new baskets for the seafood industry. Through improved polymer blending, **UNIBASKET** has been made even stronger. The new **UNIBASKET** still offers these great features:

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But the new **UNIBASKET** even exceeds its original 1,000,000 pound life and is now being manufactured to the industry's standard color, machine gray.

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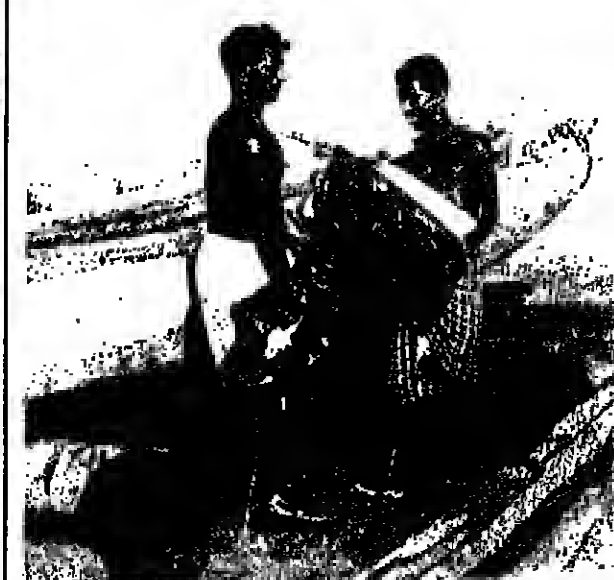
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Indian fishermen carry a modern outboard motor to their canoe. More than 12,000 boats in India are now motor powered.



Women play an important part in Indian fisheries. A fish market scene in Kerala.







# international fish market

This advertisement section is reserved for fish merchants, importers and exporters of fish and marine products.

Please contact: Linda Sheldrake, Classified Advertisement Department, FISHING NEWS INTERNATIONAL, 110 Fleet Street, London EC4A 2JL, England. Tel. 01-363 6961 Telex 21977 Sysmag.

## Spain

We are buyers of  
**FISH and SHELLFISH**  
both FROZEN  
and FRESH

**LOMPES INTERNATIONAL S.A.,**  
EDIFICIO IBERIA MART (1007),  
PEDRO TEIXEIRA 8,  
MADRID 20,  
SPAIN  
Telexes: 43494 and 42576

## Scotland

**SCO-FRO**  
Exporters of  
**SCOTTISH SEAFOOD**

SCALLOPS  
WHOLE SCAMPI  
SCAMPI TAILS  
PRAWNS  
LOBSTER  
SALMON  
WHITE FISH

Contact: Stanley Bernard,  
Managing Director,

**SCO-FRO FOODS LIMITED**

30 George Square  
Glasgow, Scotland

Telex: 778131  
Telephone: 041 221 1747

## U.S.A.



**Crocker & Winsor Seafoods**

DISTRIBUTORS OF SEAFOOD PRODUCTS THROUGHOUT U.S.A.

EXPORTERS WORLDWIDE

We purchase on a regular basis

★ FROZEN FISH FILLETS & BLOCKS  
★ SCALLOPS ★ PRAWN TAILS

145 Northern Avenue,  
Boston, Mass. 02210.  
Tel. (617) 482-6648  
Telex: 94-0504

EUROPEAN REPRESENTATIVE:  
Ien McFadden,  
15 Albert Street, Aberdeen,  
Scotland. Telex: 739158  
Tel: (0224) 25363

## Eurofrio of Spain

**FISH & SEAFOOD**

- Breaded and pre-fried crisp tempura-coated fish and seafood products.
- Hake, Flounder, Halibut, Skate, Monkfish, Salmon, Turbot, Squid, Loligo, Illex, volador, Octopus, Sepia.
- Prawns, Shrimps, Scampi (mehrops).
- Mackerel, Horse Mackerel, Sardines, Tunafish.
- Mussel meal, scallops, crabs.
- Specialty packs: Paella, Soup, Croquettes.

**EUROFRIO S.A.**

Avda. La Sardinera 25,  
La Coruna, Spain

Telex: 82163 (EFRO)  
Telex: 230867, 233470  
Cable: "EUROFRIO LA CORUNA"  
Cable: English, French, Spanish

## U.K.

**SEA PRODUCTS INTERNATIONAL**

IMPORTERS/EXPORTERS

- We specialise in the following items:
- ★ HEADLESS SHELL ON PRAWNS
  - ★ COOKED AND PELEO PRAWNS
  - ★ PELEO AND DEVEINED PRAWNS
  - ★ RED MULLET/ SNAPPER/ PAGELLIS/SQUIDS
  - ★ WHITE FISH FILLETS & SCALLOPS

Distribution anywhere by road, sea and air

**SEA PRODUCTS INTERNATIONAL**

176 Broad Street,  
Birmingham B15 1DX,  
England  
Telex: 336839  
Telephone:  
021 643 7871/2/3/4

## France

**Cobrecap**  
Compagnie Bretonne De Cargos Frigorifiques

We specialise in frozen cargoes transportation from Europe to West Africa by reefer vessels.

M/S AVEN 51,700 cu. ft. at minus 25 celsius  
M/S ISOLE 74,700 cu. ft. at minus 25 celsius  
M/S BELON 74,700 cu. ft. at minus 25 celsius  
M/S ELORN 79,700 cu. ft. at minus 25 celsius  
M/S LAITA 84,800 cu. ft. at minus 25 celsius  
M/S BLAVET 125,800 cu. ft. at minus 25 celsius

We also buy and sell fish for and from West Africa (tuna, mackerel, horse mackerel, etc.).

Quai du Moros, 29183 Concarneau, France  
Tel. (98) 97 08 30 Telex 940130 Cable: COBRECAF

## France

**IMPORT—EXPORT**  
BOULOGNE—SUR—MER

**ROGER LAVALETTE**

Commercial Agent  
All sea products  
Direct imports from the European Market

181 Route Nationale,  
62 La Capelle-les-  
Boulogne, France

Offices:  
17-19 Rue Albert Ier  
62200 Boulogne-sur-Mer  
France

Telex 110914-110995  
Tel. 30 34 22 30 20 25 30 36 66

## India

**TORRY HARRIS FOODS (INDIA) EXPORTERS**

- ★ FROZEN AND CANNED SHRIMP (all sizes)
- ★ FROG LEGS
- ★ LOBSTER TAILS
- ★ WHITE FISH (whole or fillets)
- ★ SQUIDS AND CUTLEFISH
- ★ KING CRABS

Every consignment is covered by a detailed origin certificate and accompanied by a bill of lading.

**TORRY HARRIS FOODS**  
73A FIFTH AVENUE  
MADRAS 000 040  
INDIA

Telex: 041-113 Eastwell.  
Cable: Ravicous

## LOBSTERS

- ★ Whole lobsters frozen, cooked and green (frozen)
- ★ Lobster tails (warm and cold waters)
- ★ Bostonian squids
- ★ Red snapper (fresh and frozen)
- ★ Squids (clean, Californian and Taiwan)
- ★ Conch meat
- ★ Langostinos 1 lb. poly bags
- ★ Maine lobsters
- ★ Red mullet

Shipped fresh by air anywhere in Europe



**Augusta Seafood Inc.**  
Importers & Exporters  
101 Menden Lane, New York, N.Y. 10008  
Tel. 212 686 0000 Cable: AUGUSTA INC.

## Miscellaneous

**SPEED**  
is the new ingredient in our classified service

Here's how it works:

1. BOOK A REGULAR SEMI-DISPLAY ADVERTISEMENT

2. SEND IN ANY TEXT CHANGES BY PHONE, LETTER OR TELETYPE ON THE LAST TUESDAY OF THE PRECEDING MONTH

3. WITHIN A WEEK YOUR AD IS ON ITS WAY TO READERS IN 100 COUNTRIES AND TERRITORIES BY AIRMAIL

## Spain

**CONSULTING PESCA & DESARROLLO INDUSTRIAL, S.A.**

Fishing and General Industrial Consultants and Engineers

P.O. Box 870  
Vigo, Spain  
Telex: 33003 opel  
Phone: 96-386400 (5 lines)

Preparation of Joint Venture Projects  
Temporary supply of technical staff  
Sales of new and second hand vessels and industrial equipment

We are general exporters of all kinds of dried, frozen and canned fish

# classified advertisements

RATES: 60p per line, minimum £3.00  
£2.28 per single column centimetre,  
minimum £8.84  
Box No. 60p

All advertisements must be received by the last Tuesday of the month for next issue.

## Situations Vacant

## OVERSEAS DEVELOPMENT

KNOW-HOW vital to developing countries

## Fisheries Officer

Tuvalu

To advise on work plan for development of small-scale fisheries and support programme of post-harvest fishery investigation on dry, salt, and smoked fish, Bêche de Mer, Live bait, shells, Pearl shell, aquarium fish and shark; advise on strengthening of fisheries section in terms of personnel and equipment; recommend and operate existing fisheries, launch and carry out programme of exploratory fishing to provide data for fishery development programmes; recommend an appropriate administrative structure and appropriately high level co-ordination with government to give proper priority to fisheries questions. Applicants should have minimum of 7 years service in developing country fisheries, a natural science degree, experience in administering a fisheries department and preparation of development plans.

Appointment 2 years. Salary (UK taxable) in range £8,900 - £11,000 p.a. plus tax free overseas allowance in range £1,365 - £3,590 p.a. (Ref. 329 X).

The post is wholly financed by the British Government under Britain's programme of aid to the developing countries. In addition to basic salary and overseas allowances other benefits normally include paid leave, free family passages, children's education allowances and holiday visits, free accommodation and medical attention. Applicants should be citizens of the United Kingdom.

For full details and application form please apply, quoting reference stating post concerned and giving details of age, qualifications and experience to:



Appointments Officer,  
MINISTRY OF OVERSEAS DEVELOPMENT,  
Room 301, Eland House,  
Stag Place, London SW1E 5QH.

HELPING NATIONS HELP THEMSELVES

## Situations Wanted

**FISHERIES (SOCIO-ECONOMIST, Ph.D., 36 years, German national with international experience in fisheries development with certain emphasis on traditional small-scale fisheries and adequate position. Interested parties please contact: Dr. Gerhard A. Bamm, P.O.B. 198, Semarang, Indonesia.**

## Wanted

ADVERTISER would like to hear from any person or company engaged in experimental fishing for plankton with view to purchasing from 10 to 500 kilos of the following species: Krill, Euchaeta, Calanus and Mysid Shrimp. Box No. 830.

## Wanted

**MACHINERY, MFV's, FISH**

Wanted all modern motorised vessels and also Baiter machines and processing equipment.

**FOR SALE**  
Fresh processing plant (Baiter) etc., machinery and MFV's.

Fish - top quality whole fish, whole fish processed fish and kippers.

**E.C.T. INTERNATIONAL**  
WILSON STREET,  
PETERHEAD,  
SCOTLAND  
Telephone 3222/3  
Telex 739261  
Also house, 618

## Insurance

**SALVUS, BAIN (Management) LTD.**

Over 2,000 skipper owners require that vessels and crews with us.

For particulars write:

6 The Eyrelands,  
Sunderland, Tyne & Wear,  
SR2 7SD, England.  
Tel. Sunderland (0783) 42851 (ten lines).

## Services

**CONSULTING PESCA & DESARROLLO INDUSTRIAL, S.A.**

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P.O. Box 870  
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Preparation of Joint Venture Projects  
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We are general exporters of all kinds of dried, frozen and canned fish

## For Sale

**LEAKEY BOATS**

LOBSTER/CRAB/PRAWN crewfish and oyster fish loading traps. Trawl, beach gill and shrimp nets and small fish smokers. Leakey long-line system with hauler and mud clips, the world's latest, simplest and most versatile.

**CATAMARAN FISHING BOATS**, for all safe labour saving fishing. "Modern Inshore Fishing" the best selling how-to-do-it book £1.20 and/or free catalogue.

**R. & B. LEAKEY**  
Dept. FNL  
Selle, Yorks YO24 0BA, England  
Tel. (day/night) 07282 3505

## Vessels for Sale

INTERESTED  
IN A GOOD  
STEEL BOAT?

Then please contact:

**JOHN APPELBOOM**  
Bilderdijklaan 9  
Orlehuje-Velsen  
Holland  
Tel. Ymuiden (2650) 18850  
Telex 417708  
Cables: Apply Ymuiden

Your direct link with the Dutch market for both second hand and new building fishing vessels and other craft

## Engines for Sale

**FOR RELIABILITY GARDNER DIESELS 110-230 HP**

First class marine engine units fitted with reconditioned Gardner diesels and any reduction up to 1.5:1, front and drives, AC7 alternators, large pumps and any auxiliary equipment required.

Other popular makes of engine, stern rollers, shafts and steering gear available.

For prompt service and delivery contact:

**FISHCRAFT FOLKESTONE**  
1 THE STADE, THE FISHMARKET,  
FOLKESTONE, KENT, U.K.  
Telephone (0303) 59920, 592741

**RUSTON DIESEL SPARES FOR DISPOSAL**

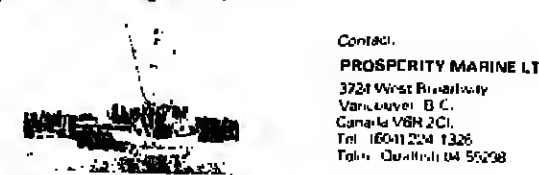
VGB, VCB, VPH, YVA, YB, VRO/VRH, VTO, VSO/VSH

**ATOTEC LIMITED**  
219 ALBERT QUAY, ABERDEEN,  
SCOTLAND  
Tel. 0224 29309 Telex 73634

## Professional Services

## DRUM SEINE CONSULTANCY

We offer complete consultancy and feasibility analysis for new building programmes as well as vessel conversions to high efficiency, low man-power drum seine techniques.



Contact:  
**PROSPERITY MARINE LTD**  
3721 West Broadway  
Vancouver, B.C.  
Canada V6N 2C1  
Tel. (604) 224 1285  
Telex: 045104 55298

## Boat Transport

**FISHING VESSELS**, diesel or steam, delivered to any port in the world. Many reputable references for deliveries to British Isles, European and African ports, J. J. Fenwick, "Kittiwake", 86 Bomber Avenue, Canvey Island, Essex, SS8 7QT, U.K. Tel.: Canvey 3044.

## Wanted

**BUYING USED AND DAMAGED BAADER FILLETING MACHINERY**

Especially Baader Heavy Duty Series, 30 and 34. Also 47, 101, 102, 104, 105 and 106. Prompt payment and no questions asked.

**GEREXIM**  
J. F. Jungschaffer,  
2860 Bremenhaven B,  
P.O. Box 29061, Germany  
Tel. 477 71127/7534 Telex 238740

## WANTED SECONDHAND FOR SPARES

**VOLVO PENTA type M.O. 27 diesel**

**BEIRTEACH TEO**  
Cable: The Embassy, London

## Services

**CONRAD BIRKHOFF**  
HAMBURG GERMANY

Naval Architects

Designers of Fishing Vessels

Consultants

Supervisors, Brokers

Lauharben 37  
2 HAMBURG 13  
GERMANY  
Tel. (4940) 449127  
Cables: COBIRK

# fishing news international

CLASSIFIED ADVERTISEMENT ORDER FORM

Please insert my advertisement in: INTERNATIONAL FISH MARKET ☐ CLASSIFIED SECTION ☐

Number of insertions and months: \_\_\_\_\_

Name: \_\_\_\_\_

Address: \_\_\_\_\_

☐ Please Bill me ☐ SEMI-DISPLAY (minimum 3 lines x 1 column)

☐ Payment Enclosed ☐ LINEAGE (Print text below)

Advertisement to be printed as: (See top of facing page for rates)

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**LUDGATE HOUSE, 110 FLEET STREET, LONDON EC4A 2JL ENGLAND**

**DISCOUNTS FOR 6 INSERTIONS: 5% FOR 12 INSERTIONS: 10%**